The Effect of Gender Quota on Female Participation in Civil Service:
A Study on the Inclusion Policy of Nepal

여성할당제가 여성의 공직참여에 미치는 영향에 관한 연구:
네팔의 양성평등정책에 관한 연구

August 2013

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Submitting a master's thesis of Public Administration

April 2013

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Abstract

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The main purpose of this study is to examine the effect of the inclusion policy of the government of Nepal on the female participation in civil service, which was first introduced in 1990s through affirmative action and positive discrimination. Gender quota system has been implemented in civil service of Nepal since 2007. The Public Service Commission (PSC) examination is one of the main avenues for entering into the civil service of Nepal. This study is mainly concerned with the participation of female candidates and their success in the PSC examination. It is assumed that if the percentage of female candidates' success in the PSC examination increases, female participation will increase in the civil service of Nepal. This study also investigates the effect of gender quota on female enrollment in higher education (i.e., university level education).

This study empirically finds that female applicants and their success rate in the PSC examination have significantly increased since the implementation of the gender quota policy. However, it is found that the increase rate of female candidates' success in the PSC examination is smaller than expected. The positive effect of the policy, thus, is not adequate to achieve the equal participation of women on the basis of the population of Nepal and the spirit of Nepal's reinstated parliament declaration. In the wake of the implementation of the gender quota policy, the overall percentage of female candidates' success has increased by 12.7 percentage points and the percentage of the female applicants has increased by 14.3 percentage points in the PSC examination. Overall, the increase rate of female candidates' success in the PSC examination is lower than the increase rate of female applicants.

For the service area, the non-technical and semi-technical types of services have larger effect of gender quota and vacancy for female candidates in increasing the female applicants and female candidates' success in the PSC examination than the technical types of services. Regarding the level, the middle level positions have larger effect of gender quota than top and bottom level positions in increasing the female candidates' success; and bottom level positions have larger effect of gender quota than middle and top level positions in increasing the female applicants in the PSC examination. Gender quota does not only increase female participation in the civil service, but also encourages female to pursue higher-level education.

Our results suggest that we must first achieve gender equality in every major and every level of higher education and reduce family care responsibility of women in order to increase female participation in the civil service. The government of Nepal should motivate female to enroll in technical education and decentralize the technical education infrastructure for achieving gender equality in technical and higher-level education. It should formulate and implement childcare and eldercare policy for reducing family care responsibility of women.

Student ID: 2011-24183

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Abbreviations

ADB	Asian Development Bank
CBS	Central Bureau of Statistics
DDC	District Development Committee
EFA	Education for All
GDP	Gross Domestic Product
GoN	Government of Nepal
IDEA	Institute for Democracy and Electoral Assistance
ILO	International Labor Organization
IMF	International Monetary Fund
MDGs	Millennium Development Goals
MOE	Ministry of Education
MOES	Ministry of Education and Sports
MOF	Ministry of Finance
MOGA	Ministry of General Administration
NICHCY	National Information Center for Children and Youth with Disabilities

OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PIS	Personnel Information System
PSC	Public Service Commission
UN	United Nations
UNESCO	United Nations Educational Scientific and Cultural Organization
USA	United States of America
VDC	Village Development Committee
VDP	Village Defence Party

Chapter 1   Introduction

1.1   Overview

Inclusion has become one of the prominent policy issues in the contemporary world. The system of representation and its effectiveness varies across nations and through the course of time. Gender quota system is pervading many sectors, therefore, female participation is increasing and gender equality in society is also increasing.

In some countries, quota for women appeared in politics as early as in the 1930s (Krook, 2009). However, few countries adopted systematic gender quotas in politics (Krook, 2009) and in civil services until the 1970s (Jahan, 2007). The UN Economic and Social Council decided to reach the target of 30 percent female representation in decision making bodies by 1995 (Pande, et al., 2011). The Fourth World Conference on Women held in Beijing (1995) declared "women's empowerment and their full participation on the basis of equality in all spheres of society, including participation in the decision-making process and access to power, are fundamental for the achievement of equality, development and peace." [1]   After this conference, regional and international organizations recommended to their own member countries for formulating gender quota policies (Krook, 2006). Most of the developed countries including Scandinavian countries have adopted voluntary party

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[1] The Fourth World Conference on Women Declaration no. 13, web source: http://www.un.org/womenwatch/daw/beijing/platform/declar.htm, accessed on December 16, 2012

quotas in politics since 1980s. In the wake of the Fourth World Conference on Women in 1995, developing countries have adopted candidate quotas and reserved seats since 1990s (Pande, et al., 2011; and Dahlerup, et al., 2005)[2]. The Bangladesh government introduced the quota system in civil services in 1976 for women, Wards of Freedom Fighters[3], tribal people and others (Jahan, 2007). The Government of Canada introduced quota system in civil service in 1995 for "women, aboriginals, visible minorities, and persons with disabilities" by 'Employment Equity Act (1995)' (Mansour, 2011; and Agocs, 2012). The Korean government adopted the quota system in civil service for female and disabled in 1996 (Kim, 2003; and Kim, 2011). The Norwegian government introduced 40 percent quotas for women in public limited company board in 2003 (Storvik, et al., 2010; and Pande et al., 2011).

In politics, Nepal adopted quota for women in 1990 in National Assembly election—five percent of proportional seats were allocated for women (Dahlerup et al., 2005). In local government bodies, reserved seats adopted for women in 1998, one member of every Village Development Committee (VDC) wards[4], and one member of every Municipality, sub-metropolitan city and metropolitan city wards; and one member of every District Development Committee (DDC) (Clarke, 2002). In the year 2008, the Constituent Assembly election allocated quotas for women on proportional representative seats by election law, which was achieved at the target level (Gurung, 2009).

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[2] Recent data are available on website of International IDEA, Quota Project, www.quotaproject.org; accessed on November 25, 2012
3 Freedom fighters were Bangali resistance force, who fought against the Pakistan Army in the Bangladesh Liberation War.
4 The ward is the lowest political unit of the local government bodies.

In civil service, Government of Nepal has adopted quotas for women, Adivasi/Janajati[5], Madhesi[6], Dalit[7], disabled and backward area people[8] since 2007 (Civil Service Act, 1993, (including Second Amendment, 2007); and Bhatta, 2011).

According to IDEA (Institute for Democracy and Electoral Assistance), quota project (www.quotaproject.org), by the year 2012, more than hundred countries adopted different kinds of quotas for women in parliamentary election, consequently, female participation is seen increasing. However, female participation in the members of parliament is 19.6 percent all over the world. Very few countries have near the forty percent of female participation in their parliaments.[9] The highest female representation is 56 percent in the parliament of Rwanda. Gender quotas adopted countries have relatively high female participation than gender quotas non-adopted countries (Sun, 2004; and Chen, 2010).

In political representation of Nepal, female participation in parliament was around 5 percent from 1991 to 1999 and 32.77 percent was in Constituent Assembly from 2008 to 2012. In Constituent Assembly proportional seats around fifty percent was occupied by female (Gurung, 2009).

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5 Indigenous nationalities people
6 People who stay in the southern, plains region of Nepal
7 Traditionally untouchable cast
8 Who live in remote and backward areas from the capital city
9 Recent data are available on website of International IDEA Quota Project,
www.quotaproject.org (as of December 22, 2012)

In some OECD countries, about 50 percent of civil service position was occupied by female in 1997. In France, it was 55.9 percent in 1996; and in Australia and Canada it was 49.2 percent and 49.5 percent respectively in 1997. In the United Kingdom, it was 49.1 percent; and in the United States 44 percent in 1996 (OECD, 1999). In Korea, it was 28.7 percent in 1997 (Kim, 2003) and 40.8 percent in 2008 (Kim, 2011). In some non-OECD countries, in Bangladesh, it was 10 percent in 2002 (Jahan, 2007). In Nepalese civil service, after implementation of gender quota system female participation is on the rise, the ratio of female is 14.70 percent in 2012 (Department of Civil Personnel Records as of 2012 July 16), which was 13.05 percent in 2010 (Bhatta, 2011) and 8.01 percent was in 2003 (Mathema, 2003).

In the past, developed countries had also low female participation in their civil service. For example, in British Civil Service, female participation was around one percent in non-industrial civil service at higher class positions among 75,000 employees in 1938 (Kingsley, 1944). Kingsley (1944) has pointed out that low female participation in civil service was mainly due to the three causes. First, some departments allowed only men to be recruited, like foreign related office and defense department. Second, women retired by force after getting married. Third, there was wage discrimination system between man and women for the same work (Kingsley, 1944).

In the period of British rule, Indian Civil Service had not allowed female to get a higher administrative job. After independence, the Indian government allowed female to participate in higher level post examinations. However,

they had to resign after getting married. This type of gender discrimination rule was in Indian Civil Service until 1972 (Swarup, et al. 1992).

This study focuses on the impact of gender quota in civil service of Nepal on the number of female applicants and their success in the PSC (Public Service Commission) examinations for entering in the civil service. The effect of gender quota is measured on the increase percentage of female applicants and female candidates' success in the PSC examinations. This study also investigates the effect of gender quota on female enrollment in university level education. This study covers from the year 2001 to 2011.

1.2   Research Objectives

Affirmative action, positive discrimination and gender quota system are ways of increasing participation for underrepresented group of people to make inclusive civil service and gender equality in public services. Gender quota is a popular tool for increasing female participation and reducing gender inequality in several areas. Thus, the objective of this research is to study the impact of gender quota on female participation in the civil service of Nepal. This empirical study suggests policy implications about inclusion policy.

1.3   Research Questions

This research seeks analytical answers to the following questions for fulfilling the research objectives:

- Does the gender quota system increase female participation in the PSC examination?

- Does the gender quota system increase female candidates' success in the PSC examination?

- Which service and level has the largest effect of gender quota in civil service of Nepal for increasing the female participation?

1.4   The Structure of the Research

The structure of this research is organized as follows: The first chapter covers brief overview of the research. The second chapter introduces Nepal, Nepalese Civil Service system and evolution of gender quota in civil service. The third chapter deals with the literature review, which includes theoretical perspective and previous studies. Fourth chapter provides research data and methods as well as research hypotheses and empirical models. Chapter five presents the research results. Chapter six provides discussion and analysis of the results. The final chapter draws conclusion and policy implications.

Chapter 2   Research Background

2.1   Introduction of Nepal

2.1.1 Geographical Location

Nepal is located in South Asia, between two giant countries, east, west and south parts are surrounded by India and north part is surrounded by China. It is a land locked country. The total land area is 147,181 km^2, it is 0.03 percent of world land. Average length and width of the nation is 885 km east to west and 193 km north to south, the shape of the country is almost rectangular. Geographically, Nepal lies between 26^022' north to 30^027' north latitudes and 80^04' east to 88^012' east longitudes. The altitude range from 60 meters to 8,848 meters, where is located in the world highest peak, the Mount Everest (Bhatta, 2011).

2.1.2 Population and Religion

According to the National Population and Housing Census Report 2011, the total population is 26.5 million, the female population is 13.6 million (51.50 percent) and the male population is 12.9 million (48.50 percent). Sex ratio is 94.2 males per 100 females in 2011, which is 5.6 percentage points lower than in 2001. There are 125 castes or ethnicity groups of people. They have own 123 spoken languages. Even though, official language is common Nepali language (CBS, 2012). There are 37.2 percent indigenous people; 30.9 percent of Bahuns and Chhetris; 14.8 percent Madhesis; 11.8 percent Dalits; and other 5.3 percent people are unidentified groups of people (Gurung, 2009). Majority

of people are Hindus (81.3 percent), followed by Buddhist (9 percent), Islam (4.4 percent), Kirat (3.1 percent), Christianity (1.4 percent), Prakriti (0.5 percent), Bon, Jainism, Bahai and Sikhism (CBS, 2012).

2.1.3 Economic Status

Economically, Nepal is one of the least developed countries. Human Development Index ranks also very low, 157th ranks out of 187 countries in 2011. The main economic development problem is poor infrastructure development and electricity problem, even though the country has 83,000 MW hydropower potential capacity (World Bank, 2012). The size of population below the poverty line is also 25.2 percent in 2011/ 12 which was 41.76 percent in 1995/96 and 30.85 percent in 2003/04. The annual GDP growth rate is 4.6 percent in 2011/12, where 4.9 percent on agricultural sector and 1.6 percent on industry sector. The last ten years average annual GDP growth rate is 4.03 percent. Per capita GDP is US$ 735 in 2011/12 (MoF, 2012).

2.1.4 Political System

Current, federal democratic republic of Nepal has adopted multi party parliamentary system, the President is the head of the state and the Prime minister is the head of the government. The new system was established in May 2008, after abolition of monarchy by Constituent Assembly (Bhatta, 2011). However, it is not institutionalized until now.

2.2   Civil Service of Nepal

Modern merit based civil service system in Nepal was started after 1951, when the Public Service Commission (PSC) established in June 15, 1951. After that, common Nepalese got to chance for entering in the civil service on the basis of merit without any discrimination. Even though, centralized administration system was already established with united from smaller princely states in 1768 (Thapa, 2010), there was no separation between military and civil service, fair civil service employee selection system and other civil service mechanisms.

Current constitution has managed on its article 153 about civil service as: "The Government of Nepal may, in order to run the Administration of the country, constitute the Civil Service and such other government services as may be required. The constitution, operation and conditions of service there of shall be as determined by an Act" (The Interim Constitution of Nepal, 2007). In 2007, the government of Nepal has adopted gender quota in civil service for women, Adivasi/Janajati, Madhesi, Dalit, disabled and backward area people (Civil Service Act, 1993 and Bhatta, 2011). Therefore, current Nepalese civil service is merit based and committed to make more inclusive.

Current Nepalese civil service includes twelve services which are guided by three prevailing Acts. Ten services are provisioned by Civil service Act, 1993. Such as: Administration Service; Agricultural Service; Audit Service; Economic, Planning and Statistics Service; Engineering Service; Judicial Service; Foreign Service; Forestry Service; Education Service; and

Miscellaneous Service. Health Service and Parliament Service are guided by separate Acts, Nepal Health Service Act, 1997 and Parliament Secretariat Act, 2001 respectively. There are different groups and sub-groups within different services (Civil Service Act, 1993). Other horizontal classifications of these services are technical and non-technical (Mainali, 2010). Some services are classified into technical ones, but the functions of these services are not exactly of the technical nature and required educational backgrounds of personnel are also similar as non-technical service personnel. Therefore, it would be better to classify horizontal services as technical, semi-technical and non-technical services. Health, agricultural, engineering and forestry services are classified as technical services, while education, economic planning and statistics, and miscellaneous services are semi-technical services, and, administration, judicial, foreign, parliament and audit services are non-technical services.

Vertically, all services except health service are classified into nine levels; viz. special class, the gazetted first class, the gazetted second class, the gazetted third class, the non-gazetted first class, the non-gazetted second class, the non-gazetted third class, the non-gazetted fourth class and the non-gazetted fifth class. Vertical levels are also classified into gazetted officers and non-gazetted officials (Mainali, 2010). The health service is classified from the first level to the twelfth levels.

Around 80,000 personnel are included in these all services and levels of the civil service of Nepal. Male employees are about 85 percent and the

remaining 15 percent employees are female. They are working in central level Ministries, Commissions and Secretariats as well as regional level directorates, zonal, district and VDC level organizations (Department of Civil Personnel Records, (PIS Software) as of 2012 July 16)[10]. University professors, teachers, military personnel and police are not included in the civil service of Nepal.

In the simple term, civil service personnel of Nepal are those who have got success in the PSC examination, and been appointed in the government organization of Nepal, and their records are kept by the Department of Civil Personnel Records.

2.3   Evolution of Gender Quota in Civil Service of Nepal and Its Implementation Process

In the Nepalese context, inclusion issues emerged in every sector only after re-establishment of democracy in the 1990s. Even though there was no discrimination among Nepalese men and women after democratization in 1951, all citizens right were equal in front of law. However, some religious and cultural barriers were there. Bennett (2005) has explained under the non democratic era, "Under the 1976 Class Organizations Act, the Panchyat rulers recognized women as a social group." At that time, new women's organization established. This organization demanded economic equality for women, equal property rights, quotas for women in education and

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[10] Recent data are available on http://www.pis.gov.np/reports (Department of Civil Personnel Records, GoN)

employment, women's voice in political activities and other government structures (Bennett, 2005).

After re-establishment of democracy in 1990, new constitution "recognized Nepal as multi-ethnic, multi-cultural and multi-lingual country". There was not proportionally representation of women, indigenous, Madhesi, Dalits, disabled and other marginalized group of people in political bodies, judicial service, civil service and military service on the basis of population (Gurung, 2009).

The Constitution of the Kingdom of Nepal (1990) provisioned gender, cultural and ethnic issues on Article: 11(3) and (5) as:

> "(3) The state shall not discriminate among citizens on grounds of religion, race, sex, caste, tribe, or ideological conviction or any of these. Provided that special provisions may be made by law for the protection and advancement of the interests of women, children, the aged or those who are physically or mentally incapacitated or those who belong to a class which is economically, socially or educationally backward. ….. ... (5) No discrimination in regard to remuneration shall be made between men and women for the same work" (The Constitution of the Kingdom of Nepal, 1990)

These provisions could not be effective to women, indigenous people, Madhesis, Dalits and other marginalized groups of people for increasing participation in the political and administrative structures of the government.

In the legislature, the participation of the indigenous people (Adivasi/Janajati) was "25.2 percent in 1991, 18.5 percent in 1994 and 18.4 percent in 1999" whose population was 37.2 percent. "Similarly, the participation of the Madhesi people was 8.7 percent in 1991, 10.7 percent in 1994 and 14.1 percent in 1999", whose population was 14.8 percent. Dalit did not elect in 1994 and 1999 only one member elected in 1991, whose population was 11.8 percent. Women's participation was not more than 5 percent in legislature from 1991 to 1999, whose population is around 51 percent. In the civil service, indigenous people occupied only 2.3 percent excluding Newars (Gurung, 2009). Women's participation in the civil service was below 5 percent until 1997 (Clarke, 2002).

The government of Nepal provisioned some affirmative actions and positive discriminations for increasing female participation in the civil service on Civil Service Act 1993. The Civil Service Act, 1993 has given privilege to women in civil service entry and career development. The Civil Service Act, 1993 provisioned entry age for men's below 35, for women's 40; probationary period one year for men and six months for women; and participation in internal competition examinations and qualified to promotion candidates for women one year less than men (Civil Service Act 1993).

Government of Nepal emphasized to increase women participation in development activities from Eighth Periodic Plan (1992-1997) on governmental, non-governmental and semi-governmental sectors. After Ninth Periodic Plan (1997-2002), the government focused to bring women

mainstreaming and eliminating gender inequality in the political and administrative sectors and empowerment to women through affirmative action. Tenth Periodic Plan (2002-2007) gave awareness need to bring more women into government service and decision-making positions for reducing gender inequality in all government structures (Acharya et al., 2007).

In 2006, change in political system took place. Inclusion issues became political agenda. Women's right activists and other indigenous groups claimed equal participation in political, administration and other government bodies on the basis of population (Gurung, 2009). At the same time, Governance Reform Program (GRP) also favored gender equality in the civil service which program was implemented from December 2001 to June 2007. Gender equity in the civil service also identified at the National Development Forum, which was hold in Paris in 2002. "Gender sensitive civil service was major agenda of Mainstreaming Gender Equity Program (MGEP) of government", which program was launched under the UNDP's support (Tiwari, 2009). In both programs supporting concepts were "New Public Administration (NPA), responsive governance and representative bureaucracy" (Tiwari; 2009). In 2004, under the chairmanship of Finance Minister, High Level Reservation Committee was established to prepare recommendation draft for effective affirmative action policy for increasing the participation of women, Dalits and indigenous people in the civil service. At the same time, Ministry of General Administration (MoGA) prepared draft for reservation quota as 20 percent for women, 10 percent for indigenous people and 5 percent for Dalit (Bennett,

2005, p.36). The High Level Reservation Committee failed to submit report because of government change.

In May 30, 2006, the reinstated parliament of Nepal declared, "equality in citizenship rights, the end of all discriminatory laws, and 33 percent reservation for women in all government structures" (Acharya, et al., 2007). This declaration enforced to government for the introduction of gender quota policy in every sectors.

Quota Allocation System and Other Affirmative Provisions for Women in Civil Service of Nepal

Since 2007, Government of Nepal has adopted quota system in civil service by second amendment (in 2007) of the Civil Service Act, 1993. According to Civil Service Act, 1993 (Second amendment, 2007), forty-five percent quota has been reserved for inclusion group of candidates from open competition vacancy portion out of total vacant posts. As the forty-five percent quota is assumed as 100 percent, out of this, thirty-three percent has been allocated for women, twenty seven percent for Adivasi/Janajati (Indigenous nationalities people), twenty two percent for Madhesi (people who stay in the southern, plains region of Nepal), nine percent for Dalit (traditionally untouchable cast), five percent for disabled (differently able) and four percent for backward area people (who live in remote and backward areas from the capital city). However, the quota system has not been applied in health service until now.

Quota vacancy seats are separated from open competition vacancy portion of total vacant posts. Open competition vacancy portions depend on different vertical levels of civil service. Table 2-1 shows there is no open competition vacancy system for the top most level, special class. The gender quota system does not directly affect in this level. The gazetted first class and second class levels have only 10 percent open competition vacancy. The gazetted third class level has 70 percent open competition vacancy. The non-gazetted first class and second class levels have 60 percent open competition vacancy. The non-gazetted third and fourth class levels have no open competition vacancy. The non-gazetted fifth class level has 100 percent open competition vacancy. However, the non-gazetted fifth class level vacant posts are not fulfilled permanently. In this level, vacant posts are fulfilled by contract workers and outsourced employees after 2001. These contract personnel and outsourced employees are not included in the civil service of Nepal. Therefore, the gender quota system in civil service directly affects the levels of gazetted first class, gazetted second class, gazetted third class, non-gazetted first class and non-gazetted second class only.

Table 2-1: Fulfillment Method of Vacant Positions of Civil Service and Portion of Open Competition Vacancies in Different Levels

S.No.	Post or Level	By open Competition (% of Open competition)	By Promotion		
			BY evaluation of competency (%)	By internal Competitive examination (%)	By adjustment of promotion by evaluation of work performance and experience (%)
1	Non-gazetted fifth class[11]	100	-	-	-
2	Non-gazetted fourth class[12]	-	-	-	-
3	Non-gazetted third class[13]	-	100	-	-
4	Non-gazetted second class	60	20	20	-
5	Non-gazetted first class	60	20	-	20
6	Gazetted Third Class	70	10	10	10
7	Gazetted Second Class	10	60	20	10
8	Gazetted First Class	10	60	20	10
9	Special class	-	100	-	-

Source: Civil service Act, 1993

Other aspects of affirmative provisions are waiver of preliminary examination, extension of age bar and reduction of probation period to female candidates.

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[11] After 2001, non-gazetted fifth class level position vacant posts are fulfilled by contract workers and outsourced employees, these employees are not included in the civil service of Nepal.

[12] The Government of Nepal going to collapse vacant posts of non-gazetted fourth class level positions, after 2007.

[13] Non-gazetted third class level vacant posts are fulfilled by promotion from non-gazetted fourth class level employees, if there is no candidate for promotion these vacant posts are collapsed, after 2007.

Those inclusion group candidates have given waiver success from the preliminary examination for reserved quota vacancy. However, they need to succeed in the preliminary examination for open competition vacancy. Other previous affirmative actions regarding age bar and probation period were already provisioned in the original version of the Civil Service Act, 1993. Women and other inclusion group candidates become qualified for internal competition examinations and participation in promotion one year less than others. The special privilege of the removal of age bar to compete in the PSC examination has been provided to those women, who have worked temporarily in the development projects of the Government of Nepal at least continuous for five years serving in any post. Paid maternity leave is provided to women for sixty days before and /or after delivery period and if they need more leave, additional six months unpaid leave is provided to them without deducted from any leave which period is not deducted from the total service period of the employees. Moreover, fifteen days maternity care leave is provided to husband (Civil Service Act, 1993; and Tiwari, 2009).

Implementation Process of Quota in Civil Service of Nepal

The PSC involves in all the recruitment processes of Nepalese civil service employees. At the start of a fiscal year, the PSC publishes the schedule of the whole year activities on a yearly basis. If any civil service post is vacant for any causes, concerned agency gives the vacancy information to the PSC within a certain period of time. The PSC determines the number of open competition vacancies, internal competition vacancies and other promotion

vacancies on the basis of the Civil Service Act 1993 (Including Second Amendment, 2007). Then within the open competition portion of the vacancy, the PSC determines the number of each inclusion group of vacancies and open competition vacancies. The PSC publishes the vacancy notice in its own website and the National daily newspaper, Gorkhapatra. After that, the PSC collects applications on the basis of allocated vacancies of different inclusion group vacancies and open competition vacancies. After collecting the applications, the PSC takes different required tests for both open competition candidates and the inclusion group of candidates simultaneously. After conducting the different required examinations, the PSC recommends merit listed candidates from the respective inclusion group of vacancies and open competition vacancies to the concerned agencies for appointing in the Civil Service of Nepal. This result is also published on the website of the PSC and the National daily newspaper. All candidates of inclusion group of vacancies and open competition vacancies participation have similar selection processes, regarding the examination system (Civil Service Act, 1993 second amendment in 2007).

Determining the number of vacancies for the inclusion group, if there is less than one, it is passed on to the next immediate group. If some groups have not available appropriate candidates, this post is included in next year vacancies in the same inclusion group, and if appropriate candidates are not available next year as well, such posts are fulfilled by the open competition vacancy of that year. The PSC has the final authority to settle any dispute concerning the

number of seat allocations (Civil Service Act, 1993 second amendment in 2007).

2.4   Female Participation in Civil Service of Nepal

There was no information available about female participation in civil service of Nepal before 1978. Female participation in civil service is 3 percent in the officer level and 2.8 percent in the non-officer level in 1978; and 5 percent in the officer level and 3.5 percent in the non-officer level in 1997 (Clarke, 2002).

As the time passes by the number of female participation kept increasing slower pale. The level wise female participation in civil service of Nepal in 2003 is given in the Table 2-2:

Table 2-2: Level Wise Female Participation in Civil Service of Nepal in 2003

S.No.	Level	Number of Male	Number of Female	Total	% of Male	% of Female	Total %
1	Gazetted Special Class	41	1	42	97.62	2.38	0.06
2	Gazetted First Class	304	4	308	98.70	1.30	0.41
3	Gazetted Second Class	1399	52	1451	96.42	3.58	1.93
4	Gazetted Third Class	4909	304	5213	94.17	5.83	6.93
5	Non -gazetted	12816	1250	14066	91.11	8.89	18.70

	First Class						
6	Non -gazetted Second Class	18169	1623	19792	91.80	8.20	26.32
7	Non- gazetted Third Class	5830	1293	7123	81.85	18.15	9.47
8	Non-gazetted Fourth Class	1781	58	1839	96.85	3.15	2.45
9	Non-gazetted Fifth Class (Class Less)	23885	1432	25317	94.34	5.66	33.66
10	Class unidentified (Class classified not available)	47	2	49	95.92	4.08	0.07
	Total: -	69181	6028	75209	91.99	8.01	100.00

Source: Department of Civil Personnel Records, GoN (PIS Software) (cited in Mathema, 2003)

Table 2-2 reveals that in 2003, overall female participation in civil service was 8.01 percent, in the top level positions the gazetted special class, the gazetted first class and the gazetted second class levels female participation was 2.38 percent, 1.30 percent and 3.58 percent respectively. In the middle-level positions, the gazetted third class, the non-gazetted first class, the non-gazetted second class and the non-gazetted third class levels female participation was 5.83 percent, 8.89 percent, 8.20 percent and 18.15 percent respectively. At the bottom-level positions, the non-gazetted fourth class and the non-gazetted fifth class levels female participation was 3.15 percent and 5.66 percent respectively (Mathema, 2003). Table 2-2 shows in the top level

and bottom level positions have lower female participation than in the middle level positions (gazetted third class, non-gazetted first class, non-gazetted second class and non-gazetted third class level). The highest female participation was in the non-gazetted third class level, it is lowest level of middle level positions.

After the implementation of gender quota, female participation in Nepalese civil service data of 2010 is available which is presented as follows:

Table 2-3: Level wise Female Participation in Civil Service of Nepal in 2010

S.No.	Level	Number of Male	Number of Female	Total	% of Male	% Female	Total %
1	Gazatted Special Class	67	2	69	97.10	2.90	0.09
2	Gazatted First Class	416	13	429	96.97	3.03	0.57
3	Gazatted Second Class	2474	113	2587	95.63	4.37	3.45
4	Gazatted Third Class	7129	593	7722	92.32	7.68	10.29
5	Non-gazatted First Class	12867	1763	14630	87.95	12.05	19.49
6	Non-gazatted Second Class	15844	2859	18703	84.71	15.29	24.92
7	Non-gazatted Third Class	5178	2972	8150	63.53	36.47	10.86
8	Non-gazatted Fourth Class	924	38	962	96.05	3.95	1.28

9	Non-gazetted Fifth Class (Class Less)	20366	1446	21812	93.37	6.63	29.06
	Total	65265	9799	75064	86.95	13.05	100.00

Source: Department of Civil Personnel Records, GoN (PIS Software) (cited in Bhatta, 2011)

Table 2-3 shows, in 2010, the overall female participation rate in civil service was 13.05 percent, in the top level special class, the gazetted first class, and the gazetted second class levels female participation was 2.90 percent, 3.03 percent and 4.37 percent respectively. In the middle-level positions, the gazetted third class, the non-gazetted first class, the non-gazetted second class and the non-gazetted third class levels female participation was 7.68 percent, 12.05 percent, 15.29 percent, and 36.47 percent respectively. In the bottom level positions, the non-gazetted fourth class and the non-gazetted fifth class levels female participation rate was 3.95 percent and 6.63 percent respectively (Bhatta, 2011). In 2010, the female participation rate was also highest in the non-gazetted third class position and higher female participation was in the middle level positions than the top level and the bottom level positions.

The growth of female participation is comparatively seen in 2012. The Table 2-4 shows service wise female participation in civil service of Nepal in 2012.

Table 2-4: Service Wise Female Participation in Civil Service of Nepal in

2012

S. No.	Service	Number of Male	Number of Female	Total	% of Male	% of Female	Total %
1	Economic Planning and Statistics Service	331	36	367	90.19	9.81	0.46
2	Engineering Service	7478	317	7795	95.93	4.07	9.81
3	Agricultural Service	4451	356	4807	92.59	7.41	6.05
4	Judicial Service	2665	232	2897	91.99	8.01	3.65
5	Foreign Service	169	32	201	84.08	15.92	0.25
6	Administration Service	33864	3354	37218	90.99	9.01	46.84
7	Audit Service	293	20	313	93.61	6.39	0.39
8	Forestry Service	4696	133	4829	97.25	2.75	6.08
9	Miscellaneous Service	1977	818	2795	70.73	29.27	3.52
10	Education Service	1368	187	1555	87.97	12.03	1.96
11	Health Service	10326	6170	16496	62.60	37.40	20.76
12	Parliament service	161	23	184	87.50	12.50	0.23
	Total	67779	11678	79457	85.30	14.70	100.00

Source: Department of Civil Personnel Records, GoN (PIS Software) as of

2012 July 16

Table 2-4 shows, in 2012, the overall female participation rate in civil service was 14.70 percent. The highest percentage of female participation in the health service was 37.40 percent, even though in this service has not adopted gender quota system yet. In other services, 29.27 percent of female participation was in the miscellaneous service, 15.92 percent in the foreign service, 12.50 percent in the parliament service, 12.03 percent in the education service, 9.81 percent in the economic planning and statistics service, 9.01 percent in the administration service, 8.01 percent in the judicial service, 7.41 percent in the agricultural service, 6.39 percent in the audit service, 4.07 percent in the engineering service and lowest female participation in the forestry service was 2.75 percent.

Table 2-4 shows technical types of services have lower female participation than non-technical and semi-technical types of services except in health service.

Level wise female participation in civil service of Nepal in 2012 is presented in the following table:

Table 2 -5: Level Wise Female Participation in Civil Service of Nepal in 2012

S. No.	Level	Number of Male	Number of Female	Total	% of Male	% of Female	Total %
1	**All Service Except Health**						
A	Gazetted Special Class	52	2	54	96.30	3.70	0.07
B	Gazetted First Class	493	12	505	97.62	2.38	0.64
C	Gazetted Second Class	2820	99	2919	96.61	3.39	3.67
D	Gazetted Third Class	9048	820	9868	91.69	8.31	12.42
E	Non-gazetted First Class	12445	1318	13763	90.42	9.58	17.32
F	Non-gazetted Second Class	11011	1771	12782	86.14	13.86	16.09
G	Non-gazetted Third Class	1921	227	2148	89.43	10.57	2.70
H	Non-gazetted Fourth Class	421	17	438	96.12	3.88	0.55
I	Non-gazetted Fifth Class	15	0	15	100.00	0.00	0.02
J	Non-gazetted Fifth Class (Classified in	19818	1533	21351	92.82	7.18	26.87

	Class Less)						
2	**Health Service**						
A	Officer Eleventh Level	29	8	37	78.38	21.62	0.05
B	Officer Tenth Level	11	1	12	91.67	8.33	0.02
C	Officer Ninth Level	158	21	179	88.27	11.73	0.23
D	Officer Eighth Level	27	9	36	75.00	25.00	0.05
E	Officer Seventh Level	670	149	819	81.81	18.19	1.03
F	Officer Sixth Level	996	464	1460	68.22	31.78	1.84
G	Senior Fifth Level	846	617	1463	57.83	42.17	1.84
H	Junior Fifth	3573	1483	5056	70.67	29.33	6.36
I	Junior Second Level	15	68	83	18.07	81.93	0.10
J	Junior third Level	1188	1816	3004	39.55	60.45	3.78
K	Junior Fourth Level	2222	1243	3465	64.13	35.87	4.36
	Total	67779	11678	79457	85.30	14.70	100.00

Source: Department of Civil Personnel Records, GoN (PIS Software) as of 2012 July 16

Table 2-5 reveals that overall female participation in the civil service of Nepal in 2012 was 14.70 percent. Excluding the health service, in top level positions special class, the gazetted first class and the gazetted second class levels female participation was 3.70 percent, 2.38 percent and 3.39 percent

respectively. In middle-level positions, the gazetted third class, the non-gazetted first class, the non-gazetted second class and the non-gazetted third class levels female participation was 8.31 percent, 9.58 percent, 13.86 percent and 10.57 percent, respectively. In bottom level positions, the non-gazetted fourth class and the non-gazetted fifth class levels female participation was 3.88 percent and 7.18 percent, respectively. In health service, the female participation rate was 81.93 percent in the junior second level, 60.45 percent was in the junior third level. In top level positions, officer tenth and ninth levels female participation was 8.33 and 11.73 percent respectively; and officer eleventh and eighth levels female participation ratio was 21.62 percent and 25.00 percent respectively. In other levels of health service, the female participation rate was 18.19 percent in the officer seventh level, 31.78 percent in the officer sixth level, 42.17 percent in the senior fifth level, 29.33 percent in the junior fifth level and 35.87 percent in the junior fourth level. In 2012, also the top level and the bottom-level positions have lower female participation than middle-level positions except in health service. When separated the health service, the highest female participation is seen in the non-gazetted second class position in 2012. In health service, bottom-level positions have higher female participation than middle-level and top-level positions.

Chapter 3   Literature Review

3.1   Theoretical Perspective

3.1.1 Concept of Inclusion Policy

Inclusion is an including process which enables the ones who are previously excluded. In the past, the term, inclusion was mostly used in the education field for waking disabled persons participate in educational activities. Currently, it is used interchangeably with mainstreaming and integration action of minority group of people for participating in government activities (NICHCY News Digest, 1995). "Inclusion is the right to access, use and enjoy all of the recreation facilities, programs and services in a manner that respects the dignity and independence of anyone wishing to participate" (The Town of Halton Hills Recreation & Parks Department, 2008).

The concept of inclusion policy derived from the representative government and representative bureaucracy. In 1944, J. Donald Kingsley has used term "representative government" and "representative bureaucracy" to study about the British Civil Service in his book "Representative Bureaucracy: An Interpretation of the British Civil Service" (Kingsley, 1944; Krislov, 1974, cited in Moloney, 2007). J. Donald Kingsley argues that representative participation in civil service adds effectiveness to government functions (Kingsley, 1944, cited in Moloney, 2007). Most of the scholars also argue "that representative bureaucracy increases government legitimacy, accountability, effectiveness, and participation" (Dolan &Rosenbloom, 2003, cited in Moloney, 2007: p. 4).

The issue of representative bureaucracy is more relevant for developing countries, because in developing countries most of the bureaucrats are upper echelon of society background and unrepresentative of the common people's interest (Hyden, 2005, cited in Jamil, et al. 2009). There are two ways used for the representative process in politics: substantive and descriptive. In substantive representation, the interest of groups are represented while in descriptive representation, physical or what members can be seen is represented (Stevens, 2007, cited in Mansour, 2011). Representative bureaucracy focuses on the descriptive type of representation, where members of groups are equally participated on the basis of population (Agocs, 2012).

"Gender equality is a fundamental human right, a commonly shared value and a necessary condition for the achievement of the internationally agreed development objectives, including all Millennium Development Goals (MDGs)" (UNESCO, 2008).

In 2000, United Nations declared the Millennium Development Goals (MDGs) in which the third goal of the MDGs is to "promote gender equality and empowerment women" (United Nations, 2010).

3.1.2 Concept of Gender Quota

Gender quota is a kind of limited competition system, where limited candidates compete among themselves. "Quotas are a form of compensation for historical injustice suffered by identifiable groups and represent evidence of society's commitment to redress that injustice" (Medha, 2006). The logic of the gender quota is "affirmative action" and "positive discrimination" to

increase the underrepresented group of people participation for making gender equality in the society and representative participation in the governmental structures. Sometimes it is called "free seats" to the underrepresented group of people (Mansour, 2011: p. 87). Gender mainstreaming and women development have become an emerging issue of social and economic development of every nation since 1970s. United Nations declared United Nations Decade for women: Equity, Development and peace for the period between 1976 and1985.[14] This concept is derived from the feminist theory. The basic concept of this theory is "gender as a social construction" (Gardiner, 2004: p.35). Gender differences can be explained biologically and socially. Biologically, man and woman belong to two different sexes such as males and females. Socially, gender is categorized into masculinity and femininity. It is "personal and psychological characteristics" (Garrett, 1992: VII; Khan, 2005:254, cited in Jahan, 2007: 42). The feminist theory seeks and recognizes the causes, means and results of gender inequality and develops an effective way for increasing gender equality in order to improve women's conditions, bring the similar status of men and women, and sometimes to control man's power (Gardiner, 2004).

"Radical feminist theories sharply divide masculine power from feminine powerlessness and cultural feminist theories focus especially on psychological differences between men and women, other theories are more attentive to the myriad differences that divide men from other men and women from other

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[14]http://www.un.org/en/events/observances/decades.shtml, accessed on December 16, 2012

women, as well as to the commonalities between the sexes and the relationships among the various categories of social inequality" (Lorber, 1994; and Maccoby, 1998; cited in Gardiner, 2004: p.42). From the feminist point of view, the gender quota system makes gender-balanced legislature and decision making body that helps change the traditional patriarchal policy making system into social-based policies like welfare, childcare and health care (Mansour, 2011; 91).

Basically, there are four reasons for adopting gender quotas. The first reason, as forwarded by women development entrepreneurs, is that gender quota helps to increase women's participation effectively. The second reason, gender quota is politically popular for attracting political elites for the political support. Thirdly, gender quota is a newly developed tool for reducing gender inequality in politics. Finally, gender quota has come into existence because of the resolutions made by the regional and international conferences, which have made mandatory for member countries, like Beijing Platform for Action (Krook, 2009: p. 19).

In the political field, there are three types of gender quotas. First, voluntary party quotas; where political parties voluntarily nominate certain percentage of marginalized group of candidates on their own electoral lists. Second, candidate quotas; where certain percentage of candidates should be nominated from marginalized groups of people on their own electoral list. Third, reserved seats; where certain seats are allocated to marginalized groups of candidates for enabling to compete only within the group (Pande, et al., 2011: p.8).

In civil service, the quota system is similar as the reserved seats type of gender quotas of politics. In politics, the focus of the quota is only the increase of women representation in politics, but in civil service, in many countries, the focus of the quota system is to increase the underrepresented and minorities group of people as well as women participation. Bangladesh and Canada have identified four groups including women for the implementation of gender quota policy in civil service (Jahan, 2007 and Mansour, 2011). Korea has identified two groups including women for implementation of gender quota policy in civil service (Kim, 2011). Nepal has identified six groups including women for implementation of gender quota policy in civil service (Civil Service Act, 1993).

Quota system has both positive and negative aspects. The positive aspects of quotas are as follows. Quota is not discrimination, it is compensation of actual barriers; it reserves right to equal representation to women; it gives women political experience, which is necessary for women; it does not violate the right of voters; it is only a temporary system; and it makes democratic process more transparent and formalized.[15]

The negative aspects of quotas can be summed up as follows. The quota system is against the principle of equal opportunity to all; it is an undemocratic system; it brings less qualified candidates into organizations and prevents qualified candidates for entering the organization; it discourages

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[15] International IDEA, Quota project retrieved from http://www.quotaproject.org/aboutQuotas.cfm, accessed on December 17, 2012

women to participate in election with male candidates; it creates conflicts inside the political parties; and it violates the liberal democratic principle.[16]

Since 1980s, most of the societies and nations have focused on bringing women in the main streams of development. Existing barriers such as access to education and women's sole responsibility of family care have become obstacles in bringing women to public administration. These barriers affect women in entering the service, promotion and career development (Bayes et al., 1991).

3.2   Previous Studies

There are several studies in the academic field of feminist theory, inclusion policy, gender equality policy and the impact of gender quota on political representation in different countries. Many of the available previous studies are based on the impact of gender quota in developed countries and in terms of political representation. In the political field, gender quota seems to be effective in increasing female participation. The countries which have adopted gender quota have relatively higher female participation than the ones without gender quota. Female participation is near the actual reserved gender quota percentage in most of the gender quota adopting countries. Some countries have lower female representation than the reserved gender quota percentage. However, few countries achieved high female representation in National Assembly without gender quotas (Denmark, Finland and Cuba) (Dahlerup et al., 2005; www.quotaproject.org, accessed in December 20, 2012). In civil

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[16] International IDEA, Quota project retrieved from
http://www.quotaproject.org/aboutQuotas.cfm, accessed on December 17, 2012

service, the gender quota shows slow effect in increasing female participation in Bangladesh (Jahan, 2007). In the case of the gender quota adopted developed countries, the female participation was relatively already high, and after the adoption of the gender quota policy, female participation has significantly increased in civil service (OECD, 1999; and Kim, 2003).

Dahlerup and Freidenvall (2005) have analyzed 47 countries' female representation in the National Assembly. They have used the term "gender quota" as "fast track" and "without gender quota" as "incremental track". They have explained voluntary political party quotas are more effective than legal quota system for making higher female representation in legislature. The Scandinavian countries introduced voluntary party quotas in early 1980s. These countries had already women representation in crossed the mark of 20 to30 percent, which was the highest women representation rate in the world. Female participation rate increased faster in Latin American and African countries after the introduction of gender quotas in the 1990s. No uniformity can be found in reserved percentage of gender quotas in different countries. Some countries reserved just five percent quota and some countries went up to fifty percent.

Dahlerup and Freidenvall (2005) further argue that the implementation process of the quota system is crucial for reducing gender inequality. However, only quota system cannot eliminate such barriers of female participation in politics as house work burden, gender imbalanced in financing and so on. The gender quota system indirectly encourages political parties to

bring women in political activities. The incremental track paves way for women who have capacity to use own political power in political decisions but fast track enables women who do not have such capacity. Therefore, the study suggests that we should create an environment for women to be represented without gender quota policy.

Chen (2010) has done experimental design research on impact of gender quotas on increasing female participation in legislature and policy outcomes; and impact of female legislator on policy outcomes with the data range from 1970 to 2006. This study compares the effect of gender quota before and after its introduction of the policy. It also compares the gender quota adopter and non-adopter countries and the gender quota adopted OECD countries and non-OECD countries as well. This study finds that gender quota has more positive effect on OECD countries than non-OECD countries in increasing female participation in legislature. Gender quotas adopted countries' female participation in legislature is 5.03 percentage points greater than the gender quotas non-adopted countries among the selected countries. Regarding the policy outcome, gender quotas and portion of female legislator are only affected to social welfare policy than other policy outcomes. Voluntary party quotas are more effective than legal quotas for increasing female participation. It adds further that in developing countries, gender quota have solely affected in increasing female participation. On the other hand, gender quota based increment in female participation is not seen contributed to policy outcome issues. The study suggests a regularly tracking of the data for finding the effect of female legislator on policy outcomes is required.

Soh (2011) explains about the low female participation in South Korean National Assembly and Local council in 1990s. Therefore, the Korean government introduced gender quotas in politics in 1995 and 2000. After the implementation of the gender quota policy, the number of female legislators has increased. The positive argument was that the quota system is effective. However, some argued "we do not need to have gender quota system because women's status in Korea is high enough to 'fairly' compete with men." In 2002, the 'Political Parties Act' was amended and managed the quota of 50 percent for women on municipal/provincial councils with alternative order on nominee list for proportional representatives. In the provincial and municipal councils, women's representation was found increased after the implementation of the quota system. The study argues that the gender quota in Korean politics was introduced by law but not by political parties voluntarily like in Scandinavian countries. Therefore, it is hard to achieve gender equality in Korean politics. The study concludes that "women's participation in Korean politics is strongly depends on the compulsory gender quota rules." The government should develop strategies to attract women in politics without gender quota.

These above researches have focused on the effect of gender quota on female participation in political representations basically in legislature. Our research, however, focuses the effect of gender quota on female participation in civil service.

Sun (2004) takes selected sixteen sample countries' to compare female participation rate in politics and administration with Taiwan, using the data until 2004. The study explains European countries and Australia have 33 percent to 50 percent and Asian countries have reserved less than 30 percent quota in politics. Further, in Asian countries, female participation is lower in top or decision making level than in bottom levels. Female participation is found improving in Taiwan and other Asian countries but it is lower than in western developed countries. Traditional values and norms, financial resources, downsizing government policies, patriarchal culture, double burden of work (home and office) for women, perception and attitudes have affected female participation in the Asian region. The causes of Taiwan's achievement of higher female participation in political and administrative sectors are "Sun Yat-sen's" belief in gender equality, increased educated population, economic development and modernization. The study argues that gender equality is increasing in all the sectors and all countries because of gender quota system, with the suggestion that at least two sectors should be improved for reducing gender inequality. First, social welfare system; government should provide childcare and elder care facilities; and second, education system; like mass media, news papers and TV programs must be used for gender awareness as a complement to formal school education.

Pande, and Ford (2011) have conducted research on the impact of gender quotas on female participation in legislature and corporate board, covering 126 countries, and using the data of the year 2002 and 2005. The study finds that the GDP per capita or economic development of the nation does not affect

in increasing female legislators, reserved seats for female and candidate quotas positively affect in increasing the female legislators. Reserved seat types of gender quotas are more effective than candidate quotas for increasing female legislators. Voluntary party quotas are not seen effective for increasing female legislators. The gender quota in public limited company boards are also found effective for increasing female participation in the boards. However, the increased female board members have mixed results for economic outcomes. The study points out that most of the countries set less reserved quotas than the quota recommended by the United Nations (30 percent). The design and systems of gender quota is crucial for increasing female participation in their sectors. The gender quota in politics does not only affect the direct increase in the participation of female. It also affects the preparation for election candidates; and encouraging to vote and voice to support the women.

Moloney (2007) conducted research on the impact of fiscal decentralization, voice and accountability, GDP per capita and the percentage of female legislator on the percentage of female civil servant in central and sub-national level government using "panel-corrected time series model" and data covering period from 1996 to 2004. This study finds that fiscal decentralization is significant predictor of percentage of female civil servant in central level government. Voice and accountability is not significant predictor of female civil servant in central and sub-national level government. The GDP per capita of the nation is statistically significant predictor of female civil servant in central and sub-national government. The percentage of female

parliamentarians is only significant predictor of female civil servant in central level government.

Kwon and Milgrom (2009) conducted a study on how the gender composition affects wellbeing of the male and female workers in the firm. This research is based on Swedish data. This study covers 443 sample cases, 186,679 workers, more than 50 occupation groups and around 20 years period. This study measures the turnover rate of male and female workers with the condition of achieving gender equality in top managerial positions. The study finds that when the ratio of top level female managers increases, the turnover rate of female workers reduces as equal as when the ratio of male top managers increases and the turnover rate of male workers. It means both gender workers have equal degree of same gender attractions. When the ratio of top female managers increases, the turnover rate of male workers is higher than that of the female workers with respect to the increment in male top managers. It means the opposite gender aversion degree of male workers is higher than that of female workers. The study concludes that the additional top female managers' positive effect is smaller than the negative effect of additional top female managers'. It argues that government policy is important for achieving gender equality. The study suggests that policy makers should analyze and understand cost and benefit of the gender equality. This research is related to female and male workers' behavior with the same gender top managers and opposite gender top managers. Our study focuses on the effectiveness of gender quota in increasing female participation in civil service quantitatively.

OECD (1999) report reveals that the overall number of civil service employees decreased in selected seven OECD countries except in France. On the other hand, the ratio of female participation in civil service increased in the countries except in Sweden from 1985 to 1996. This report points out the decreasing civil service employees due to such causes as the set budget-cutting objectives of most of the countries, adopted privatization policy and civil service downsizing policy. The report reveals that the percentage of female participation in civil service is higher than the percentage of women in economy as a whole in the countries except in the United States. Female participation in top level positions, technical jobs and professional services are lower than clerical and administrative support type of services in all the selected OECD countries. For making gender equality in civil service, the Government of Canada introduced "Employment Equity Act" in 1995, The United Kingdom introduced "ways to foster equal opportunities for men and women", and The United States introduced "Federal Equal Opportunity Recruitment Program (FEORP)". The government should apply new staff management system such as flexible working time, after achieving gender equality in civil service.

Kim (2003) explains female participation in Korean civil service which has increased in the past two decades. Quota system in civil service is also effective for increasing the female representativeness in the Korean government agencies. However, women are more attracted in redistributive types of agencies than regulatory and distribute types of agencies. In redistributive types of agencies, female participation was 29.2 percent to 58.1

percent and in regulatory and distributive types of agencies, female participation was 6.9 percent to 15.2 percent while the overall female participation in civil service was 31.7 percent in 2001. Most of the female are in the clerical and secretarial nature of jobs and bottom level positions, very few female are in the professional and administrative type of jobs; and top and middle level positions. In 2008 in top level positions (grade 1 and 2) female participation was 2.3 percent while the overall female participation in Korean Civil Service was 40.8 percent (Kim, 2011). For minimizing the conflict between men and women, the study recommends the Korean government to formulate compensatory principle based fairer personnel policies.

Jahan (2007) explains the Bangladeshi civil service quota system in which the government of Bangladesh introduced 55 percent reserved quotas for women and other groups in 1976 in civil service, which reserved 10 percent for women in gazetted posts (Class I and II); and 15 percent in non-gazetted posts (Class III and IV). The main focus of this quota is on Wards of Freedom Fighters, for which 30 percent seats were reserved. Before 1976, female participation in Bangladesh civil service was 7 percent; after the introduction of the quota system, it was 8 percent in 1985; around 9 percent in 1994; and around 10 percent in 2002. The study argues that the increasing rate of female participation is small in Bangladeshi civil service. This effect is similar to the natural growth of female participation. The low participation of women in civil service is the result of the extended family system and banning women from living without her husband or other family members, cultural responsibility of women in child care and elder care, male oriented work

environment, work-pattern, work-space, less protection of women's privacy and psychological mindset that women are not suitable for administrative and challenging jobs. The study forwards the recommendation to the government that it should develop effective education and training policies for motivating the female to join the civil service. This study measures the overall participation of female in Bangladesh civil service in different points of time. Contrary to this our study measures the trend of the participation of female candidates and their success in the PSC examination for entering the civil service of Nepal.

Mansour (2011) points out that there are basically two factors for effective implementation of gender quota policy. First is 'elite framing', which is supported by elites; and second is 'the effective majority', which is supported by the majority of the people. The Government of Canada has adopted quotas in bureaucracy through elite support. It has not adopted quotas in legislature because of the lack of elite support and lack of support of the majority people. In the case of France, quotas system is not seen effective without the support from the 'elite' and 'the effective majority.' Mansour (2011) argues that "the success of women's representation by quotas in the Swedish government is not a result of quotas at all, but a result of incremental socialization that resulted in elite support". Therefore, the success case of the gender quota in Sweden are both 'the effective majority' which has been supported by the majority of people since long time and gender quota has been also supported by the political elite as 'elite framing'. In addition, gender quotas in Canadian bureaucracy has created increased the number of women in the lower level

ranks and they face "glass ceiling near the bottom of the job ladder" (p.94). This is the effect of inequalities in hiring process and compensation facilities (p.94).

Clarke (2002) explains female participation in Nepalese civil service as very low and increasing slowly. In the officer level, the women participation rate was 3 percent in 1978 and 5 percent in 1997; and in the non-officer level 2.8 percent in 1978 and 3.5 percent in 1997. This low female participation in civil service is due to the lack of access in education for women. The Asian Development Bank (ADB) (1999) also points out that the female participation in both Nepalese political and administration sectors is very low, because of the lack of education, low income and house work burden. It recommends "the target should be to ensure that annual recruitment of women should be at least 20 percent of civil service positions" (p.46).

Dangal (2005) points out that generally female candidates' success percentage in the PSC examination of Nepal is around 10 percent. He argues that it is not the discrimination of selection process. It is the cause of low female participation in the PSC examination. In the year 2000, the percentage of female applicants was around 9 percent and the percentage of female candidates' success was10 percent. This low female participation in the PSC examination is due to the gender inequality in the society. Jamil and Dangal (2009) point out that the Nepalese bureaucracy is "gender biased, religion biased and caste biased, which means that the bureaucracy favors Hindu males who belong to the upper caste and come from an agricultural

background." This study suggests that the government should formulate affirmative action policies to include underrepresented groups of people for making democratic, representative, and inclusive bureaucracy.

Many of previous studies show that gender quota has affected positively for increasing female representation in political bodies. It has also become effective to increase female participation in public company board (Pande, et al., 2011). Gender quota seems to be efficient in those countries in which countries women's livelihood have already improved and female representation ratio is relatively high; for example Nordic countries' legislature and OECD countries' civil service (Dahlerup, et al., 2005; Pande, et al., 2011). Most of the scholars argue that the improvement in educational status of women, solid power inside the political parties and improvement in economic status of female are needed for increasing female participation and reducing gender inequality in every sphere of societies. There are very few studies about the effect of gender quotas on female participation in developing countries and in the civil service. There are not any studies about the impact of gender quota on female participation in civil service of Nepal yet.

The effect of gender quotas in Bangladeshi civil service evidence shows that female participation got increased by around 1 percent point in every 10 years (Jahan, 2007). Comparing with the Bangladeshi civil service, in the Nepalese civil service in increasing rate of female participation is around 1 percentage point every year, the after introduction of gender quota policy. However, the effect of gender quota in civil service needs to be assessed right from the

entering process because of the long term career path and few members are continuously going and coming on the basis of vacant posts, unlike in the political field which has a short term career path with the bulk of entrance. It takes long time to show the effect of gender quota in civil service.

Available previous studies measure the effect of gender quota policy before and after the implementation of the policy such as the increase or decrease in female participation in a certain field. Similarly, this study measures the effect of the gender quota policy in the civil service of Nepal, but in a different way, that is, it attempts to measure the effect of the policy on the female participation in PSC examinations as female applicants and female candidates' success to enter into the civil service of Nepal in different horizontal services and vertical levels.

Table 3-1: Summary of Previous Studies

Title	Author	Journal	Data	Findings and Recommendations
"Quota as a 'Fast Track' to Equal Representation for Women"	Drude Dahlerup and Lenita Freidenvall (2005)	International Feminist Journal of Politics, 7:1 March 2005, 26-48	Female participation in legislature, until 2004 of more than 45 countries.	Gender quota policy – a major instrument in enhancing female participation; need to create environment for incremental track.
"Do Gender Quotas Influence Women's Representation and Policies?"	Li-Ju Chen (2010)	The European Journal of Comparative Economics, Vol 7, n.1, pp. 13-60	Female participation in legislature, data between year 1970 and 2006 of 103 countries	Gender quota system more effective in OECD countries and voluntary party quotas are more effective than legal quotas in increasing female legislators.
"Ten Years' Experience of Gender Quota System in Korean Politics"	Eunyoung Soh (2011)	GEMC Journal no. 4. 2011 Tohoku University	Female participation in National Assembly and municipal/provincial council in Korea from year 1995 to	Gender quota is effective for increasing female in political representation. Government should develop strategies to attract women in politics without gender

			2006.	quotas.
"Gender Representation in Politics and Public Administration: Taiwan and Asian Countries"	Tsai-Wei Sun (2004)	Presented paper on 18th Conference of International Association of Historians of Asia, December 6-10, 2004	Female participation in politics and administration and data covering until 2004 of 16 countries.	Female participation is increasing all sectors and all countries cause of adoption of gender quota policy. The study suggests that at least social welfare system and education system should be improved for achieving gender equality.
"Gender Quotas and Female Leadership"	Rohini, Pande; and Deanna Ford (2011)	World Development Report 2012, Gender Equality and Development, Background Paper	Female participation in legislature and corporate board; and data covering period year 2002 and 2005 of 126 countries.	The GDP per capita does not affect to increase female legislators. Gender quota positively affects to increase female legislators. Design and implementation process of gender quotas are crucial.
"Representative Bureaucracy: A Cross-National Analysis of	Kim Moloney (2007)	Presenting paper on Workshop 2: Diverse Leaders leading a	Female participation in legislature; and central and sub-national level	GDP per capita of the nation statistically affects female participation in central and sub-national level government of

Gender (1996-2004)"		Diverse Workforce, paper: Leading the Future of the Public Sector: the Third Transatlantic Dialogue University of Delaware	government civil service. Data covering period is 1996 to 2004 of 208 countries.	civil service. Female parliamentarians significant affect female participation in central level government civil service.
"Working for Female Managers: Gender Hierarchy in the Workplace"	Illoong Kwon and Eva M. Meyersson Milgrom	Mimeo	Male and female managers and workers, based on Swedish data, 443 sample cases, 186, 679 workers, more than 50 occupation groups and covering period around 20 years.	Both gender workers, same gender attraction is similar with top level managers. Male worker opposite gender aversion is higher than the female workers. Policy makers should analyze and understand cost and benefit of the gender equality.
"Structure of the Civil Service Employment in	OECD (1999) report	Available on OECD website,	Female participation in civil service, covering period of	Female participation in civil service is increasing. Government should apply

Seven OECD Countries"		http://www.oecd.org/governance/pem/1910699.pdf accessed on April 25, 2013	the data 1985 to 1997 of selected seven OECD countries.	new staff management system such as flexi working time, after achieving gender equality.
"Women in the Korean Civil Service"	Chon-Kyun Kim (2003)	International Journal of Public Administration, Vol. 26, No. 1, pp. 61-78	Women in Korean Civil Service, regression analysis using data in the year 2001.	Women participation in Korean civil service is increasing, redistribution agencies and bottom level positions have higher female participation.
"Gender Mainstreaming in Bangladesh Civil Service: Prospects and Constraints"	Momtaz Jahan,(2007)	Asian Affairs, Vol. 29, No. 1, 41-72, January – March 2007	Female participation in Bangladesh civil service and covering period of the data from 1976 to 2002.	The effect of gender quota has seen slow in the Bangladeshi civil service. Government should develop effective education and training policies for motivating female to join the civil service.
"Influencing Our	Riham	Maping Politics,	Comparison of three	The Government of Canada adopted

Decisions: Why Quotas Are Accepted by the Public in the Bureaucracy and Not in Legislatures"	Mansour (2011)	Volume 3, 2010-2011	countries case studies - Canada, Sweden and France.	quota in bureaucracy is supported by 'elite framing'. The Government of France adopted quota in politics is neither supported by 'elite framing' nor 'the effective majority'. Government of Sweden adopted quota in politics is supported by both 'elite framing' and 'the effective majority.'
"The State of Bureaucratic Representativeness and Administrative Culture in Nepal"	Ishtiaq Jamil and Rameshwor Dangal (2009)	Contemporary South Asia, 17:2, 192-211	Female participation in PSC examination of Nepal, data has used year 2001/02,	Government of Nepal should formulate affirmative action policies to include underrepresented group of people in civil service.

Chapter 4 Research Data and Method

4.1 Data

Population data are used in this research. The sources of data collection are published reports of concerning government organizations of Nepal; related published journals articles; official websites of the concerning organizations; and personnel of related organizations. The collected data are from the year 2001 to the year 2011. Hence, this study adopts time series data. The year 2006 is excluded from the analysis, because in this year, there was few numbers of vacancies on only in health service. The year 2008 is excluded for analyzing proportion of female applicant and the year 2011 is excluded for analyzing proportion of female candidates' success because data are not available. The data of the year 2011 concerning the enrollment in university education in Nepal are assumed to be the same for the year 2010. If the number of total success and total applicants is zero, which means this year, this service and this level data are not available or there are no success candidates and applicants. All data are collected based on the Nepalese fiscal year, which starts in mid-July of every year, i.e., the data of each calendar year consists of a period from mid-July to the following year's mid-July. Thus, the data for this study involve the pattern such as 2001/02, 2002/03 and so on. In order to avoid confusion, the data of 2001/02 is considered as that of 2001, similarly the data of 2002/03 as of 2002, and likewise.

Female participation in the civil service of Nepal data of some years are collected from published journal articles. In year 2012, female participation in civil service data are collected from Government of Nepal, Department of Civil Personnel Records, Hariharbhawan, Lalitpur, Nepal, source of information is Personnel Information System (PIS) software.[17]

The horizontally classified services and the vertically classified levels of the civil service; and the vacancy years of the PSC examinations are the principal units of analysis in this research.

4.2   Variables

Dependent variables are the proportion of female applicants and the proportion of female candidates' success in the PSC examination data are collected and computed from annually published report of PSC Nepal and website of PSC (Public Service Commission, 2001 to 2012; and www.psc.gov.np)[18]. All data are compiled in terms of horizontal service category and vertical levels with on a yearly basis. These data cover only open and internal competition vacancy portion of total vacant posts of civil service of Nepal. The proportion of female applicants data are computed as the number of female applicants divided by total applicants. The proportion of female (candidates') success data are computed as the number of female

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[17] Recent information are available on http://www.pis.gov.np/reports, accessed on July 16, 2012
[18] Data Collection and combined from different year Public Service Commission Report, Year 2001 to 2012; and some year reports are available on www.psc.gov.np, accessed on December 26, 2012

candidates' success divided by total candidates' success in the PSC examination.

Gender quota and proportion of vacancy for female candidates are used as main independent variables. Gender quota is used as a dummy variable, if vacancy year is before 2007, it is coded as 0 and if vacancy year is 2007 or later 2007, it is coded as 1. The gender quota is used to estimate the effect of gender quota on female applicants and female candidates' success in the PSC examination for comparing the increase percentage of female before introduction and after implementation of gender quota policy. It also measures the effect of gender quota on female enrollment in university education. The proportion of vacancy for female candidates is computed as the number of vacancy reserved for female candidates divided by total vacancy of the PSC examination. The proportion of vacancy for female candidates is used to estimate the effect of proportion of vacancy for female candidates on female applicants and female candidates' success in the PSC examination; and female enrollment in university education. It is also used to estimate the comparison of rate of female applicants and the rate of actual female candidates' success in proportion to the rate of vacancy for female candidates in the PSC examination.

The annual GDP growth rate of the nation is used as control variable. The annual GDP growth rate data are collected from "Economic Survey 2011/2012" of Nepal, which is annually published by Government of Nepal,

Ministry of Finance (Ministry of Finance, 2012)[19]. The annual GDP growth rate is used to estimate the effect of economic growth of the nation on female applicants and female candidates' success in the PSC examinations; and female enrollment in university education.

Another model is also developed for measuring the effect of gender quota on female enrollment in university education. For this model, the percentage of female enrollment in university education (dependent variable) data are collected from 'Nepal Education in Figures, At-a-Glance' which is annually published by the Government of Nepal, the Ministry of Education (MOES, 2005; and MOE, 2006 to 2011)[20]. The percentage of female enrollment in university education data are computed from sum of all majors and levels of university education enrollment number of female students divided by sum of all majors and levels number of students enrollment in university education, converted into percentage. In this model, independent variables such as gender quota, the proportion of vacancy for female candidates in the PSC examinations, the annual GDP growth rate and the enrollment year of university education are used.

4.3   Research Hypotheses

Most of the developing countries and some developed countries have a challenge for reducing gender inequality in all sectors. Gender quota system is

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[19] Recent report is available on
http://mof.gov.np/ajw/uploads/uploaded_image/Series%20Table%20of%20Chapter%201.pdf
[20] Some reports are available on www.moe.gov.np and
http://pustakalaya.org/eserv.php?pid=Pustakalaya:2362&dsID=MOE_NepalEducation
InFigures2010At-a-Glance.pdf, accessed on July 20, 2012

effective affirmative action and a newly developed tool for increasing female participation. For entry in the Nepalese civil service, women have to participate and succeed in the PSC examination. They should have service related academic qualifications for participating in the examination; and they have to get a minimum score for success in the examination. Those are the preconditions for female participation in the civil service of Nepal. Thus, the hypotheses of this research are as follows:

H_0 = Gender quota system has no effect on female participation in the PSC examination of Nepal.

H_1= Gender quota system has positive effect on female participation in the PSC examination of Nepal.

H_0 = Gender quota system has no effect on female candidates' success in the PSC examination of Nepal.

H_2 = Gender quota system has positive effect on female candidates' success in the PSC examination of Nepal.

4.4   Empirical Models

Two sets of main OLS regression models are developed for analyzing the effect of gender quota and the proportion of vacancy for female candidates on the participation of female candidates and their success in the PSC examination. There are two different dependent variables between two main models. The proportion of female applicants is the dependent variable in the female applicant model and the proportion of female candidates' success is

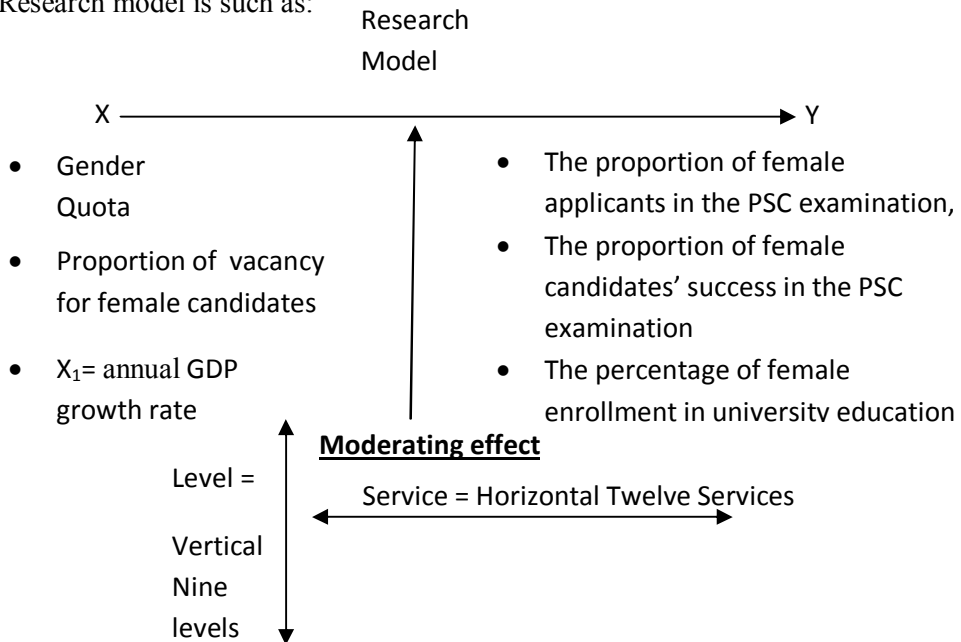the dependent variable in the female success model. The rest three sets of OLS regression models are also developed for analyzing the effect of gender quota and the proportion of vacancy for female candidates on the female applicants and the female candidates' success in the PSC examination in different services and levels of the civil service of Nepal; and the female enrollment in university education. The proportion of female applicants and the proportion of female candidates' success are dependent variables in these service wise and level wise models. The percentage of female enrollment in university education is the dependent variable for female enrollment in university education model.

The gender quota (dummy) and proportion of vacancy for female candidates are used as main independent variables in all models while sub-models contain either the gender quota or proportion of vacancy for female candidates. The control variable, annual GDP growth rate of the nation is used in all models and sub-models. Different services and levels of the civil service are taken as moderating effect factors.

Research model is such as:

Research
Model

X ——————————————————————→ Y

- Gender Quota
- Proportion of vacancy for female candidates
- X_1= annual GDP growth rate

Level =

Vertical Nine levels

- The proportion of female applicants in the PSC examination,
- The proportion of female candidates' success in the PSC examination
- The percentage of female enrollment in university education

Moderating effect

Service = Horizontal Twelve Services

Each set of main OLS regression models includes three sub-models. The dependent variable in all female applicants' sub-models is the proportion of female applicants. The independent variables in the first female applicant sub-model are gender quota, which is a dummy variable: 0 or 1, service dummies (different horizontally classified services), level dummies (different vertical hierarchical levels) and the annual GDP growth rate. The independent variables in the second female applicant sub-model are the proportion of vacancy for female candidates, service dummies, level dummies, and the annual GDP growth rate. The independent variables in the third female applicant sub-model are the proportion of vacancy for female candidates, service dummies, level dummies, year dummies (different vacancy year 2001 to 2011) and the annual GDP growth rate. The service dummies, level dummies and year dummies are used for making similar effect of gender

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quota and the proportion of vacancy for female candidates on different services, levels and years.

The summary of female applicant model and sub-models are follows:

Female Applicant Sub-Model 1: Proportion of Female_applicants $= \beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{Service\_dummies} + \beta_3 X_{Level\_dummies} + \beta_4 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (i)$

Female Applicant Sub-Model 2: Proportion of Female_applicants $= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Service\_dummies} + \beta_3 X_{Level\_dummies} + \beta_4 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (ii)$

Female Applicant Sub-Model 3: Proportion of Female_applicants $= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Service\_dummies} + \beta_3 X_{Level\_dummies} + \beta_4 X_{Year\_dummies} + \beta_5 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (iii)$

Similarly, female success main model also includes three sub-models. The dependent variable in all sub-models is the proportion of female candidates' success. The independent variables in the first female success sub-model are gender quota, service dummies, level dummies and the annual GDP growth rate. The independent variables in the second female success sub-model are the proportion of vacancy for female candidates, service dummies, level dummies, and annual GDP growth rate. The third female success sub-model independent variables are proportion of vacancy for female candidates, service dummies, level dummies, year dummies and the annual GDP growth rate.

The summary of female success model and sub-models are follows:

Female Success Sub-Model 1: Proportion of Female_success $= \beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{Service\_dummies} + \beta_3 X_{Level\_dummies} + \beta_4 X_{GDP\_growth\_rate} + \varepsilon \dots \dots \dots \dots (i)$

Female Success Sub-Model 2: Proportion of Female_success $= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Service\_dummies} + \beta_3 X_{Level\_dummies} + \beta_4 X_{GDP\_growth\_rate} + \varepsilon \dots \dots \dots \dots (ii)$

Female Success Sub-Model 3: Proportion of Female_success $= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Service\_dummies} + \beta_3 X_{Level\_dummies} + \beta_4 X_{Year\_dummies} + \beta_5 X_{GDP\_growth\_rate} + \varepsilon \dots \dots \dots \dots (iii)$

Other three sets of each models includes different sub-models. The first model is 'service wise female success and female applicant model'. This model includes four sub-models. The dependent variable in the first and second sub-models is the proportion of female candidates' success. In the first sub-model, independent variables are the gender quota, level dummies and the annual GDP growth rate. In the second sub-model, independent variables are the proportion of vacancy for female candidates, level dummies and the annual GDP growth rate. The dependent variable in the third and fourth sub-models is the proportion of female applicant. In the third sub-model, independent variables are gender quota, level dummies and the annual GDP growth rate. In the fourth sub-model, independent variables are the proportion of vacancy for female candidates, level dummies and the annual GDP growth rate.

The summary of service wise female success and female applicant model and sub-models are follows:

Service Sub-Model 1: Proportion of Female_success= $\beta_0 + \beta_1 X_{Gender\_quota} + +\beta_2 X_{Level\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (i)$

Service Sub-Model 2: Proportion of Female_success= $\beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Level\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (ii)$

Service Sub-Model 3: Proportion of Female_Applicants= $\beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{Level\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (iii)$

Service Sub-Model 4: Proportion of Female_Applicants= $\beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Level\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (iv)$

The second model is 'level wise female success and female applicant model'. This model also includes four sub-models. The dependent variable in the first and second sub-models is the proportion of female candidates' success. In the first sub-model, independent variables are gender quota, service dummies and the annual GDP growth rate. In the second sub-model, independent variables are the proportion of vacancy for female candidates, service dummies and the annual GDP growth rate. The dependent variable in the third and fourth sub models is the proportion of female applicants. In the third sub-model,

independent variables are gender quota, service dummies and the annual GDP growth rate. In the fourth sub-model, independent variables are the proportion of vacancy for female candidates, service dummies and the annual GDP growth rate. The summary of level wise female success and female applicant model and sub-models are as follows:

Level Sub-Model 1: Proportion of Female_success $= \beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{Service\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \epsilon \dots \dots \dots \dots (i)$

Level Sub-Model 2: Proportion of Female_success $= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Service\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \epsilon \dots \dots \dots \dots (ii)$

Level Sub-Model 3: Proportion of Female_Applicants $= \beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{Service\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \epsilon \dots \dots \dots \dots (iii)$

Level Sub-Model 4: Proportion of Female_Applicants $= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{Service\_dummies} + \beta_3 X_{GDP\_growth\_rate} + \epsilon \dots \dots \dots \dots (iv)$

The third model is 'female enrollment in university education model.' This model also includes four sub-models. In all sub-models, the percentage of female enrollment in university education is a dependent variable. In the first sub-model, independent variables are gender quota and the annual GDP growth rate. In the second sub-model, independent variables are gender quota, annual GDP growth rate and enrollment year. In the third model, independent

variables are the proportion of vacancy for female candidates and annual GDP growth rate. In the fourth sub-model, independent variables are the proportion of vacancy for female candidates, annual GDP growth rate and enrollment year.

The summary of female enrollment in university education model and sub-models are as follows:

Education Sub-Model 1: Percentage of Female_enrollment_in_University_education $= \beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots \ldots (i)$

Education Sub-Model 2: Percentage of Female_enrollment_in_University_education $= \beta_0 + \beta_1 X_{Gender\_quota} + \beta_2 X_{GDP\_growth\_rate} + \beta_3 X_{enrollment\_year} + \varepsilon \ldots \ldots \ldots \ldots (ii)$

Education Sub-Model 3: Percentage of Female_enrollment_in_University_education
$= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{GDP\_growth\_rate} + \varepsilon \ldots \ldots \ldots (iii)$

Education Sub-Model 4: Percentage of Female_enrollment_in_University_education
$= \beta_0 + \beta_1 X_{Proportion\ of\ vacancy\ for\ female} + \beta_2 X_{GDP\_growth\_rate} + \beta_3 X_{enrollment\_year} + \varepsilon \ldots \ldots \ldots \ldots (iv)$

Where:

- Proportion of Female_applicant: Portion of female applicants of total applicants in the PSC examination, it is computed by female applicants divided by total applicants.

- Proportion of Female_success: Portion of female candidates' success of total candidates' success in the PSC examination, it is calculated by number of female candidates' success divided by total candidates' success in the PSC examination.

- Gender_quota: Implementation of gender quota as a dummy variable, if vacancy year before 2007, it is coded as 0 and if vacancy year is 2007 or later 2007, it is coded as 1.

- Proportion of vacancy for female: Portion of vacancy for female candidates of total vacancy, it is computed by number of vacancy for female candidates divided by total number of vacancies in the PSC examination.

- GDP_growth_rate: Annual GDP growth rate of the nation.

- Percentage_of_female_enrollment_in_university_education: proportion of female enrollment in university level education, it is computed by number of total female student enrollment in the university level education divided by overall total number of student enrollment in that level converted into percentage.

- Vacancy_year: Year of vacancy for fulfilling the vacant post of civil service.

- Enrollment_year: Enrollment year of university level education

- Service_dummies: It is created for controlling the effect of gender quota and the proportion of vacancy for female candidates on different services, it has left first service on the model of regression, in this case administration service has left on the regression model, and it makes similar effect of gender quota and proportion of vacancy for female candidates in all services.

- Level_dummies: It is created for controlling the effect of gender quota and proportion of vacancy for female candidates on different levels, it has left first level on the regression model, in this case first level (Non-gazetted fourth class) has left on the regression model, it makes similar effect of gender quota and proportion of vacancy for female candidates in all levels

- Year_dummies: It is created for controlling the effect of proportion of vacancy for female candidates on different years, it has left first year on the regression model, in this case year 2001 has left on the regression model, it makes similar effect of proportion of vacancy for female candidates in all years.

- β_0, β_1, β_2, β_3, β_4 and β_5, (Beta- 0, 1, 2, 3, 4 and 5): Regression coefficients or parameters in the model.

- Ɛ (Epsilon): Random error.

Chapter 5   Results

The results of main OLS regression models and sub-models; service wise model and sub-models; level wise model and sub-models; and female enrollment in university education model and sub-models; correlation of main variables; and summary of statistics are reported in the following tables:

Table 5-1 reveals that the result of female applicant model and this model includes three sub-models:

Table 5–1: Results of Female Applicant Model

VARIABLES	(Female Applicant Sub-Model 1) Proportion of Female Applicants	(Female Applicant Sub-Model A2) Proportion of Female Applicants	(Female Applicant Sub-Model A3) Proportion of Female Applicants
Gender Quota	0.143***		
	(0.018)		
Proportion of vacancy for female candidates		0.717***	0.629***
		(0.047)	(0.052)
Annual GDP Growth Rate	-0.0002	0.011**	0.013***
	(0.006)	(0.004)	(0.005)
Agricultural Service	-0.011	-0.012	-0.013

	(0.032)	(0.028)	(0.028)
Audit Service	-0.066*	-0.048	-0.048*
	(0.034)	(0.029)	(0.029)
Economic, Planning &	-0.112***	-0.100***	-0.102***
Statistics Service	(0.035)	(0.030)	(0.030)
Education Service	0.054	0.055*	0.051*
	(0.033)	(0.029)	(0.029)
Engineering Service	-0.115***	-0.106***	-0.106***
	(0.031)	(0.027)	(0.027)
Foreign Service	0.052	0.037	0.036
	(0.036)	(0.031)	(0.031)
Forestry Service	-0.071**	-0.044	-0.049*
	(0.033)	(0.029)	(0.028)
Health Service	0.153***	0.194***	0.195***
	(0.036)	(0.031)	(0.031)
Judicial Service	-0.009	-0.021	-0.022
	(0.035)	(0.029)	(0.029)
Miscellaneous Service	0.086**	-0.015	-0.009
	(0.037)	(0.033)	(0.033)
Parliament Service	0.107**	0.084**	0.070*
	(0.042)	(0.037)	(0.037)
Non-gazetted third class &	-0.262	-0.311**	-0.287**
health service third level	(0.160)	(0.130)	(0.129)
Non-gazetted second class &	-0.331**	-0.304**	-0.304**

health service fourth level	(0.154)	(0.126)	(0.124)
Non-gazetted first class &	-0.335**	-0.314**	-0.311**
health service fifth level	(0.154)	(0.125)	(0.124)
Gazetted third class &	-0.377**	-0.379***	-0.376***
health service sixth level	(0.154)	(0.126)	(0.124)
Gazetted second class &	-0.479***	-0.439***	-0.440***
health service seventh level	(0.154)	(0.126)	(0.124)
Gazetted first class &	-0.480***	-0.441***	-0.443***
health service eighth level	(0.155)	(0.126)	(0.125)
Health service ninth level	-0.636***	-0.634***	-0.659***
	(0.169)	(0.150)	(0.149)
Health service eleventh level	-0.495***	-0.296**	-0.282*
	(0.169)	(0.150)	(0.149)
Year Effect	No	No	Yes
Constant	0.520***	0.477***	0.475***
	(0.154)	(0.126)	(0.124)
Observations	425	373	373
R-squared	0.445	0.621	0.638
Adjusted R-Squared	0.416	0.598	0.609

Standard errors in parentheses

*(p<0.1)= significant at 10% level; ** (p<0.05)= significant at 5% level;*

*and *** (p<0.01)= significant at 1% level.*

In the first applicant sub-model in Table 5-1, the R-squared and Adjusted R-squared scores are 0.445 and 0.416. Adjusted R-square of 0.416 means 41.6

percent about the dependent variable (Proportion of female applicants) is accounted for by all independent variables in this regression sub-model. The coefficient of gender quota is 0.143 and statistically significant at the level of 0.01. It means after implementation of gender quota policy, the overall percentage of female applicants has increased by 14.3 percentage points in the PSC examination. The coefficient of the annual GDP growth rate is not statistically significant.

The R-square and Adjusted R-square score are 0.621 and 0.598 in the second sub-model in Table 5-1. In this sub-model 59.8 percent about dependent variable (Proportion of female applicants) is explained by included all independent variables in this regression sub-model. The coefficient of proportion of vacancy for female candidates is 0.717 and significant at the level of 0.01, indicating that if the proportion of vacancy for female candidates' increases by 10 percentage points, the percentage of female applicants will increase by 7.17 percentage points without controlling for the vacancy year effect. The coefficient of annual GDP growth rate is 0.011 and statistically significant at the level of 0.01, meaning that if real GDP growth rate increases by 10 percentage points, the percentage of female applicants will increase by 0.0011 percentage points without controlling for the vacancy year effect.

In the third sub-model in Table 5-1, 60.9 percent about dependent variable (Proportion of female applicants) is explained by all independent variables in this regression sub-model. The coefficient of the proportion of vacancy for

female candidates is 0.629 and statistically significant at the level of 0.01, signifying that if the proportion of vacancy for female candidates increases by 10 percentage points, the percentage of female applicants will increase by 6.29 percentage points with controlling for the vacancy year effect. The coefficient of annual GDP growth rate is 0.013 and significant at the level of 0.01, which means if annual GDP growth rate increases by 10 percentage points, the percentage of female applicants will increase by 0.0013 percentage points with controlling for the vacancy year effect.

The Table 5-2 reveals that the results of female success model and sub-models:

Table 5-2: Results of Female Success Model

	(Female Success Sub-Model 1)	(Female Success Sub-Model 2)	(Female Success Sub-Model 3)
VARIABLES	Proportion of Female Success	Proportion of Female Success	Proportion of Female Success
Gender Quota	0.127***		
	(0.019)		
Proportion of vacancy for female candidates		0.959***	0.951***
		(0.045)	(0.050)
Annual GDP Growth Rate	-0.002	0.001	0.002

	(0.007)	(0.004)	(0.005)
Agricultural Service	0.046	0.039	0.038
	(0.036)	(0.026)	(0.026)
Audit Service	0.005	0.010	0.008
	(0.038)	(0.027)	(0.027)
Economic, Planning & Statistics Service	-0.019	-0.033	-0.035
	(0.039)	(0.028)	(0.028)
Education Service	0.067*	0.068**	0.062**
	(0.038)	(0.027)	(0.027)
Engineering Service	-0.033	-0.030	-0.032
	(0.035)	(0.025)	(0.025)
Foreign Service	0.010	-0.015	-0.018
	(0.040)	(0.029)	(0.028)
Forestry Service	-0.028	-0.012	-0.016
	(0.037)	(0.027)	(0.026)
Health Service	0.257***	0.292***	0.293***
	(0.041)	(0.029)	(0.029)
Judicial Service	0.009	-0.011	-0.011
	(0.038)	(0.028)	(0.027)
Miscellaneous Service	0.140***	0.016	0.013
	(0.043)	(0.031)	(0.031)
Parliament Service	0.020	0.015	0.003
	(0.047)	(0.034)	(0.033)
Non-gazetted third class &	-0.441**	-0.483***	-0.470***

health service third level	(0.179)	(0.129)	(0.126)
Non-gazetted second class &	-0.512***	-0.485***	-0.495***
health service fourth level	(0.172)	(0.124)	(0.121)
Non-gazetted first class &	-0.544***	-0.521***	-0.525***
health service fifth level	(0.172)	(0.124)	(0.121)
Gazetted third class &	-0.590***	-0.558***	-0.565***
health service sixth level	(0.172)	(0.124)	(0.121)
Gazetted second class &	-0.646***	-0.594***	-0.603***
health service seventh level	(0.172)	(0.124)	(0.121)
Gazetted first class &	-0.649***	-0.590***	-0.597***
health service eighth level	(0.173)	(0.125)	(0.122)
Health service ninth level	-0.856***	-0.782***	-0.794***
	(0.195)	(0.140)	(0.137)
Health service eleventh level	-0.595***	-0.564***	-0.570***
	(0.195)	(0.140)	(0.137)
Year Effect	No	No	Yes
Constant	0.635***	0.600***	0.599***
	(0.172)	(0.124)	(0.121)
Observations	416	416	416
R-squared	0.353	0.665	0.687
Adjusted R-squared	0.319	0.647	0.664

Standard errors in parentheses

The R-square and adjusted R-square scores in the first sub-model in Table 5-2 are 0.353 and 0.319. In this sub-model, 31.9 percent about the dependent variable (Proportion of female success) is explained by all independent variables in this regression sub-model. The coefficient of gender quota is 0.127 and statistically significant at the level of 0.01, which means after the implementation of gender quota policy, the overall percentage of female candidates' success in the PSC examination has increased by 12.7 percentage points. The coefficient of annual GDP growth rate is not statistically significant.

In the second sub-model in Table 5-2, 64.7 percent of variance in dependent variable (Proportion of female success) is explained by all independent variables in this regression sub-model. The coefficient of proportion of vacancy for female candidates is 0.959 and significant at the level of 0.01, which means if the proportion of vacancy for female candidates' increases by 10 percentage points, the percentage of female candidates' success will increase by 9.59 percentage points without controlling for the vacancy year effect. The coefficient of annual GDP growth rate is not statistically significant.

In the third sub-model in Table 5-2, 66.4 percent of variance in dependent variable (Proportion of female success) is accounted for by all independent variables in this regression sub-model. The coefficient of proportion of

vacancy for female candidates is 0.951 and significant at the level of 0.01, indicating that if the proportion of vacancy for female candidates' increases by 10 percentage points, the percentage of female candidates' success will increase by 9.51 percentage points with controlling for the vacancy year effect. The coefficient of the annual GDP growth rate is not statistically significant.

The Table 5-3 reveals the coefficients of gender quota and proportion of vacancy for female candidates on service wise female success and female applicant model and sub-models:

Table 5-3: Coefficients of Gender Quota and Proportion of Vacancy for Female Candidates on Service Wise Female Success and Female Applicant Model and Sub-Models

	(Service Sub-Model 1)	(Service Sub-Model 2)	(Service Sub-Model 3)	(Service Sub-Model 4)
Main variables Services	Proportion of Female Success = Gender quota	Proportion of Female Success = Proportion of vacancy for female candidates	Proportion of Female Applicant = Gender quota	Proportion of Female Applicant =Proportion of vacancy for female candidates
Administration Service	0.091***	1.019***	0.183***	1.706***
	(0.020)	(0.138)	(0.026)	(0.170)
Agricultural Service	0.036	0.794**	0.066*	0.806***
	(0.066)	(0.353)	(0.038)	(0.203)
Audit Service	0.083	1.649***	0.067**	0.586***
	(0.077)	(0.292)	(0.030)	(0.127)
Economic, Planning	0.149**	1.044***	0.063**	0..400***

and Statistics Service

	(0.052)	(0.111)	(0.024)	(0.087)
Education Service	-0.012	0.733**	0.139***	0.766***
	(0.074)	(0.304)	(0.042)	(0.171)
Engineering Service	0.084***	0.850***	0.055***	0.422***
	(0.026)	(0.157)	(0.019)	(0.138)
Foreign Service	0.219**	1.049***	0.427***	1.217***
	(0.101)	(0.082)	(0.111)	(0.169)
Forestry Service	0.082**	0.918***	0.091***	0.724***
	(0.038)	(0.263)	(0.029)	(0.215)
Health Service	0.065	dropped	-0.101	Dropped
	(0.070)		(0.068)	
Judicial Service	0.213***	1.033***	0.307***	0.949***
	(0.074)	(0.056)	(0.080)	(0.142)
Miscellaneous Service	0.360***	0.866***	0.304***	0.325**
	(0.097)	(0.110)	(0.075)	(0.115)
Parliament Service	0.140	0.912***	0.012	0.489*
	(0.180)	(0.122)	(0.217)	(0.237)

Standard errors in parentheses

* ($p<0.1$)= significant at 10% level; ** ($p<0.05$)= significant at 5% level; and

*** ($p<0.01$)= significant at 1% level.

In the first sub-model in Table 5-3, administration service, engineering service, judicial service and miscellaneous service gender quota coefficients are 0.091, 0.084, 0.213 and 0.360 respectively; and significant at the level of 0.01, meaning that after implementation of gender quota policy, the percentage of female candidates' success has increased by 9.1 percentage points in

administration service, 8.4 percentage points in engineering service, 21.3 percentage points in judicial service and 36 percentage points in miscellaneous service in the PSC examination. Economic, planning and statistics service; foreign service; and forestry service gender quota coefficients are 0.149, 0.219 and 0.082 respectively; and significant at the level of 0.05, indicating that after implementation of gender quota policy, the percentage of female candidates' success has increased by 14.9 percentage points in economic, planning and statistics service; 21.9 percentage points in foreign service; and 8.2 percentage points in forestry service in the PSC examination. Agricultural, audit, education, health and parliament service gender quota coefficients are not found to be statistically significant.

In the second sub-model in Table 5-3, administration service; audit service; economic, planning and statistics service; engineering service; foreign service; forestry service; judicial service; miscellaneous service; and parliament service proportion of vacancy for female candidates coefficients are 1.019, 1.649, 1.044, 0.850, 1.049, 0.918, 1.033, 0.866 and 0.912 respectively; and significant at the level of 0.01, it means if the proportion of vacancy for female candidates increases by10 percentage points, the percentage of female candidates' success will increase by 10.19 percentage points in administration service; 16.49 percentage points in audit service; 10.44 percentage points in economic, planning and statistics service; 8.5 percentage points in engineering service; 10.49 percentage points in foreign service; 9.18 percentage points in forestry service; 10.33 percentage points in judicial service; 8.66 percentage points in miscellaneous service; and 9.12 percentage points in parliament

service. Agricultural service and education service proportion of vacancy for female candidate coefficients are 0.794 and 0.733 respectively; and significant at 0.05 level, it means if the proportion of vacancy for female candidates increases by 10 percentage points, the percentage of female candidates' success will increase by 7.94 percentage points in agricultural service and 7.33 percentage points in education service. In health service, proportion of vacancy for female candidate coefficient is dropped because health service has not gender quota system. Therefore, this service has not vacancy for female candidates.

In the third sub-model in Table 5-3, administration service, education service, engineering service, foreign service, forestry service, judicial service and miscellaneous service gender quota coefficients are 0.183, 0.139, 0.055, 0.427, 0.091, 0.307 and 0.304 respectively; and significant at 0.01 level, meaning that after implementation of gender quota, the percentage of female applicants has increased by 18.3 percentage points in administration service, 13.9 percentage points in education service, 5.5 percentage points in engineering service, 42.7 percentage points in foreign service, 9.1 percentage points in forestry service, 30.7 percentage points in judicial service and 30.4 percentage points in miscellaneous service. Audit service; and economic, planning and statistics service gender quota coefficients are 0.067 and 0.063 and significant at 0.05 level, which means after implementation of gender quota policy, the percentage of female applicants has increased by 6.7 percentage points in audit service; and 6.3 percentage points in economic, planning and statistics service. Agricultural service gender quota coefficient is 0.066 and significant

at level of 0.1, it means after implementation of gender quota, the percentage of female applicants has increased by 6.6 percentage points in agricultural service. Health and parliament service gender quota coefficients are not statistically significant for increasing the female applicants.

In the fourth sub-model in Table 5-3, administration service; agricultural service; audit service; economic, planning and statistics service; education service; foreign service; forestry service; and judicial service proportion of vacancy for female candidates coefficients are 1.706, 0.806, 0.586, 0.400, 0.766, 0.422, 1.217, 0.724 and 0.949 respectively; and significant at 0.01 level, it means if the proportion of vacancy for female candidates increases by 10 percentage points, the percentage of female applicants will increase by 17.06 percentage points in administration service; 8.06 percentage points in agricultural service; 5.86 percentage points in audit service; 4 percentage points in economic, planning and statistics service; 7.66 percentage points in education service; 4.22 percentage points in engineering service; 12.17 percentage points in foreign service; 7.24 percentage points in forestry service; and 9.49 percentage points in judicial service. In miscellaneous service proportion of vacancy for female candidates coefficient is 0.325 and significant at the level of 0.05; and parliament service proportion of vacancy for female candidate coefficient is 0.489 and significant at the level of 0.1, it means if the proportion of vacancy for female candidates increases by 10 percentage points, the percentage of female applicants will increase by 3.25 percentage points in miscellaneous service and 4.89 percentage points in
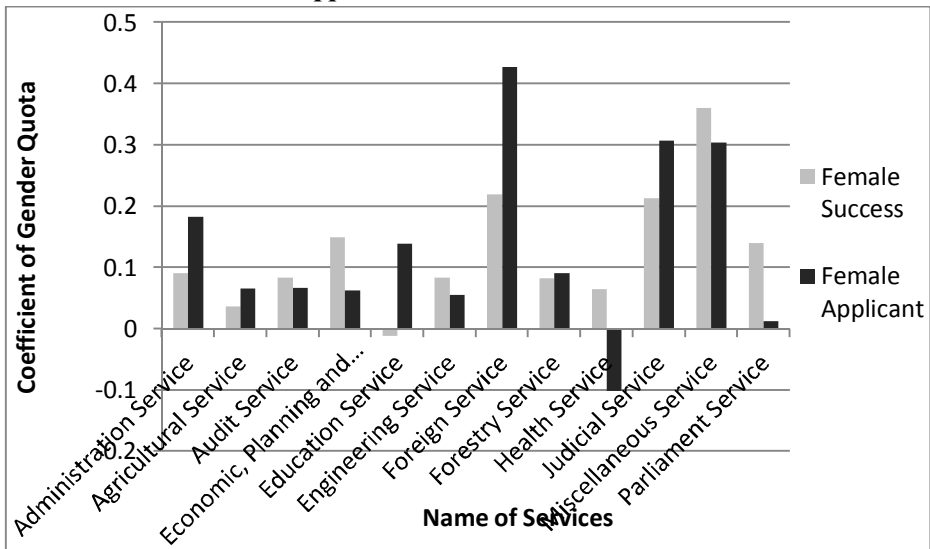
parliament service. Health service coefficient is also dropped in this sub-model.

The miscellaneous service has the largest effect of gender quota in increasing the percentage of female candidates' success and the foreign service has the largest effect of gender quota in increasing the percentage of female applicants in the PSC examination. The audit service has the largest effect of the proportion of vacancy for female candidates in increasing the percentage of female candidates' success and the administration service has the largest effect of proportion of vacancy for female candidates in increasing the percentage of female applicants in the PSC examination.

In overall service wise results shows, non-technical and semi-technical types of services have larger effect of gender quota and the proportion of vacancy for female candidates than technical types of services in increasing the female applicants and female candidates' success in the PSC examination.
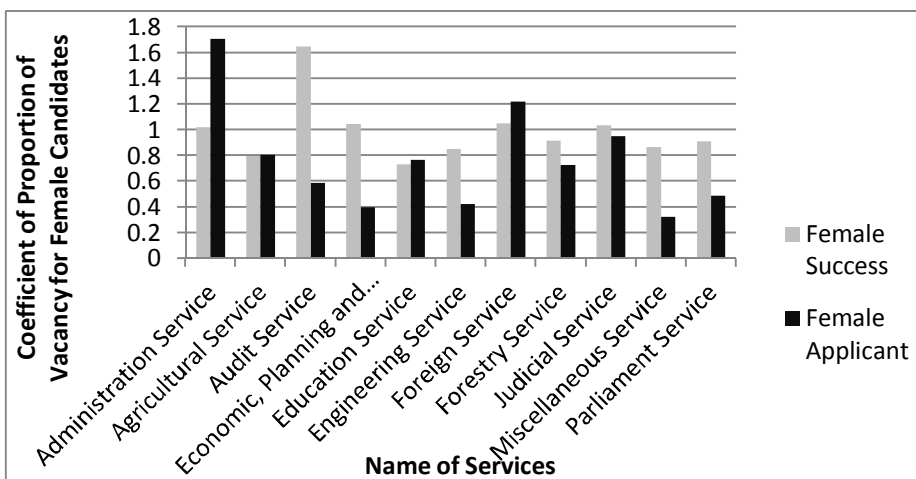
The following bar diagram (Figure 5-1) shows coefficients of gender quota on service wise female success and female applicant sub-models:

Figure 5-1: Coefficients of Gender Quota on Service Wise Female Success and Female Applicant Sub-models

The following bar diagram (Figure 5-2) shows coefficient of proportion of vacancy for female candidates on service wise female success and female applicant sub-models:

Figure 5-2: Coefficients of Proportion of Vacancy for Female Candidates on Service Wise Female Success and Female Applicant Sub-models

The Table 5-4 reveals that the coefficients of gender quota and proportion of vacancy for female candidates on level wise female success and female applicant model and sub-models.

Table 5-4: Coefficients of Gender Quota and Proportion of Vacancy for Female Candidates on Level Wise Female Success and Female Applicant Model and Sub-models

	(Level Sub-Model 1)	(Level Sub-Model 2)	(Level Sub-Model 3)	(Level Sub-Model 4)
Main Variables	Proportion of Female Success = Gender quota	Proportion of Female Success = Proportion of vacancy for female candidates	Proportion of Female Applicant = Gender quota	Proportion of Female Applicant =Proportion of vacancy for female candidates
Level (Bottom to Top)				
Non-gazetted fourth class & health service second level	Insufficient observations	Insufficient observations	Insufficient observations	Insufficient observations
Non-gazetted third class & health service third level	Dropped	Dropped	Dropped	Dropped
Non-gazetted second class & health service fourth level	0.080	0.922***	0.124***	0.409***
	(0.052)	(0.159)	(0.037)	(0.144)
Non-gazetted first class & health service fifth level	0.179***	0.890***	0.186***	0.680***
	(0.028)	(0.072)	(0.030)	(0.101)
Gazetted third class &	0.129***	0.969***	0.194***	0.530***

health service sixth level	(0.033)	(0.077)	(0.036)	(0.110)
Gazetted second class &	0.133***	1.090***	0.076*	0.938***
health service seventh level	(0.042)	(0.075)	(0.044)	(0.102)
Gazetted first class &	0.018	.997***	0.091*	0.854***
	(0.069)	(0.138)	(0.049)	(0.069)
Health service ninth level	Few observations	dropped	Few observations	dropped
Health service eleventh level	Few observations	dropped	Few observations	Dropped

Standard errors in parentheses

* (p<0.1)= significant at 10% level; ** (p<0.05)= significant at 5% level; and

*** (p<0.01)= significant at 1% level.

In the Table 5-4, the non-gazetted fifth class and gazetted special class level are not included in this result table because the gazetted special class vacant posts are not fulfilled by the open competition vacancy as well as internal competition vacancy of PSC examination. The special class vacant posts are only fulfilled by evaluation of competency. The non-gazetted fifth class position vacant posts are fulfilled by contract workers, who are not included in the civil service. The non-gazetted fourth class including health service second level position observations are insufficient in all sub-models; and non-gazetted third class level including health service third level coefficients are dropped in all sub-models. Government of Nepal going to lapse these non-gazetted fourth class and non-gazetted third class level positions (Civil

Service Act., 1993). Health service ninth level and health service eleventh level coefficients are also dropped because observations are very few. Hence, these levels coefficients are not included in this analysis part.

In the first sub-model in Table 5-4, the coefficients of gender quota in different levels are such as: in non-gazetted first class including health service fifth level; gazetted third class including health service sixth level; and gazetted second class including health service seventh level are 0.179, 0.129 and 0.133 respectively; and significant at the level of 0.01, indicating that after implementation of gender quota, the percentage of female candidates' success has increased by 17.9 percentage points in the non-gazetted first class including health service fifth level; 12.9 percentage points in the gazetted third class including health service sixth level; and 13.3 percentage points in the gazetted second class including health service seventh level. The coefficients of gender quota in non-gazetted second class including health service fourth level; and gazetted first class are not statistically significant.

In the second sub-model in Table 5-4, the coefficients of proportion of vacancy for female candidates in different levels are such as: in the non-gazetted second class is 0.922, in the non-gazetted first class is 0.890, in the gazetted third class is 0.969, in the gazetted second class is 1.090, and in the gazetted first class is .997; and all coefficients are significant at 0.01 level. It means if proportion of vacancy for female candidates increases by 10 percentage points, the percentage of female candidates' success will increase by 9.22 percentage points in the non-gazetted second class level, 8.9

percentage points in the non-gazetted first class level, 9.69 percentage points in the gazetted third class level, 10.9 percentage points in the gazetted second class, and 9.97 percentage points in the gazetted first class level.

In the third sub-model in Table 5-4, the non-gazetted second class including the health service fourth level; the non-gazetted first class including the health service fifth level; and the gazetted third class including the health service sixth level gender quota coefficients are 0.124, 0.186 and 0.194 respectively; and significant at the level of 0.01, it means after implementation of gender quota policy, the percentage of female applicants has increased by 12.4 percentage points in the non-gazetted second class including the health service fourth level, 18.6 percentage points in the non-gazetted first class including health service fifth level and 19.4 percentage points in the gazetted third class including health service sixth level. The gazetted second class including health service seventh level and the gazetted first class level, gender quota coefficients are 0.076 and 0.091 respectively; and significant at the level of 0.1, it means after implementation of gender quota, the percentage of female applicants has increased by 7.6 percentage points in the gazetted second class including health service seventh level and 9.1 percentage points in the gazetted first class level.

In the fourth sub-model in Table 5-4, the proportion of vacancy for female candidates coefficients in different levels are such as: in the non-gazetted second class, the non-gazetted first class, the gazetted third class, the gazetted second class and the gazetted first class are 0.409, 0.680, 0.530, 0.938 and
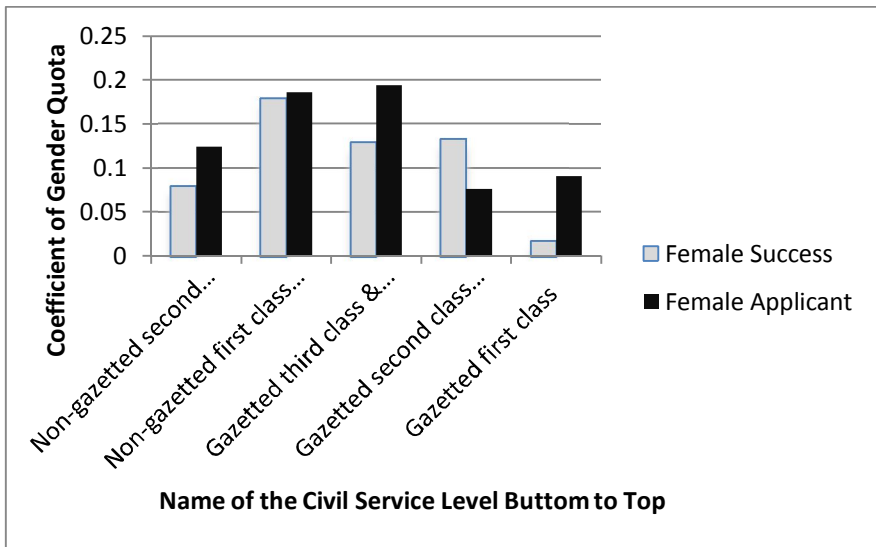
0.854 respectively; and significant at 0.01 level, it means if the proportion of vacancy for female candidates increases by 10 percentage points, the percentage of female applicants will increase by 4.09 percentage points in the non-gazetted second class level, 6.8 percentage points in the non-gazetted first class level, 5.3 percentage points in the gazetted third class level, 9.38 percentage points in the gazetted second class level and 8.54 percentage points in the gazetted first class level.

In the non-gazetted first class level has the largest effect of gender quota in increasing the percentage of female candidates' success and gazetted third class level has the largest effect of gender quota in increasing the percentage of female applicants in the PSC examination. In the gazetted second class level has the largest effect of proportion of vacancy for female candidates in increasing the female applicants and female candidates' success in the PSC examination.

The remarkable result can be seen in the top-most and bottom-most level positions, which have no effect from the gender quota in increasing the percentage of female candidates' success in the PSC examinations. Middle levels are found to have a larger effect of gender quota in increasing the percentage of female candidates' success, while bottom levels have a larger effect of gender quota in increasing the percentage of female applicants in the PSC examinations. Top levels have larger effect of the proportion of vacancy for female candidates in increasing the percentage of female applicants and percentage of female candidates' success in the PSC examinations.
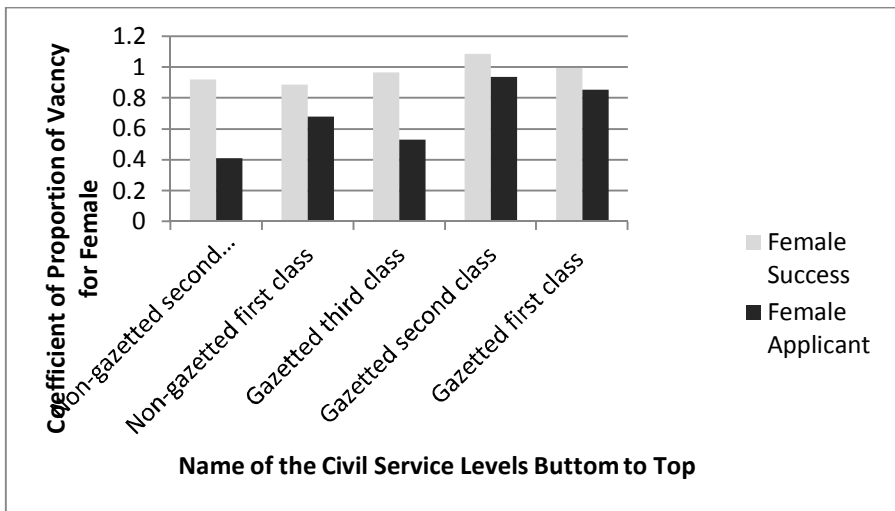
The following bar diagram (Figure 5-3) shows coefficients of gender quota on level wise female success and female applicant sub-models:

Figure 5-3: Coefficients of Gender Quota on Level Wise Female Success and Female Applicant Sub-models

The following bar diagram (Figure 5-4) shows coefficients of proportion of vacancy for female candidates on level wise female success and female applicant sub-models.

Figure 5-4: Coefficients of Proportion of Vacancy for Female Candidates on Level Wise Female Success and Female Applicant Sub-models

The Table 5-5 reveals that the results of female enrollment in university education model and sub-models:

Table 5-5: Results of Female Enrollment in University Education Model

	(Education Sub-Model 1)	(Education Sub-Model2)	(Education Sub-Model3)	(Education Sub-Model4)
VARIABLES	% of Female Enrollment in University Education	% of Female Enrollment in University Education	% of Female Enrollment in University Education	% of Female Enrollment in University Education
Gender Quota	13.56***	5.335***		
	(0.227)	(0.151)		

Proportion of vacancy for female candidates			17.84***	1.973***
			(1.964)	(0.461)
Enrollment Year		1.448***		2.241***
		(0.023)		(0.025)
Annual GDP Growth Rate	-0.122	-0.501***	1.794***	-0.487***
	(0.085)	(0.028)	(0.199)	(0.050)
Constant	27.87***	-2,872***	25.76***	-4,460***
	(0.295)	(46.28)	(0.768)	(49.16)
Observations	468	468	416	416
R-squared	0.912	0.991	0.336	0.969
Adjusted R-Squared	0.911	0.991	0.333	0.969

Standard errors in parentheses

* (p<0.1)= significant at 10% level; ** (p<0.05)= significant at 5% level; and *** (p<0.01)= significant at 1% level.

In the first sub-model in Table 5-5, the coefficient of gender quota is 13.56 and significant at the level of 0.01, it means after implementation of gender quota policy, the percentage of female enrollment in university education has increased by 13.56 percentage points. The coefficient of annual GDP growth rate is not statistically significant.

In the second sub-model in Table 5-5, the coefficient of enrollment year is 1.448 and significant at the level of 0.01, it means, after implementation of

gender quota policy, every year, the percentage of female enrollment in university education has increased by 1.448 percentage points. The coefficient of annual GDP growth rate is negative 0.501 and significant at the level of 0.01. It means if the annual GDP growth rate increases by 10 percentage points, the percentage of female enrollment in university education will decrease by 0.05 percentage points every year.

In the third sub-model in Table 5-5, the coefficient of proportion of vacancy for female candidates is 17.84 and significant at the level of 0.01. It means if the proportion of vacancy for female candidate increases by 10 percentage points, the percentage of female enrollment in university education will increase by 1.784 percentage points. The coefficient of annual GDP growth rate is 1.794 and significant at the level of 0.01. It means, if annual GDP growth rate increases by 10 percentage points, the percentage of female enrollment in university education will increase by 0.1794 percentage points.

In the fourth sub-model in Table 5-5, the coefficient of enrollment year is 2.240 and significant at the level of 0.01. It means, if vacancy for female candidates and annual GDP growth rate are remaining the same, every year the percentage of female enrollment in university education will increase by 2.24 percentage points.

The Table 5-6 reveals that the correlation of main dependent and independent variables using different regression models and sub-models in this research:

Table 5-6: Correlation of Main Variables

Variables	Proportion of Female Success	Proportion of Female applicant	Proportion of vacancy for female candidates	Gender Quota	Percentage of Female Enrollment in University Education	Annual GDP growth rate
Proportion of Female Success	1.00					
Proportion of Female applicant	0.73	1.00				
Proportion of vacancy for female candidates	0.64	0.57	1.00			
Gender Quota	0.29	0.36	0.48	1.00		
% of Female Enrollment in University Education	0.31	0.37	0.48	0.95	1.00	
Annual GDP Growth Rate	0.11	0.18	0.22	0.52	0.46	1.00

The Table 5-6 shows that correlations of all main variables are positive, but

only some variables are highly correlated. The proportion of female applicants

and proportion of female success correlation is 0.73. It means, the female candidates success highly depends on female applicants. If female applicants increase, female candidates' success will increase. The proportion of female success and proportion of vacancy for female candidate correlation is 0.64, it means female candidates' success highly depends on the proportion of vacancy for female candidates. If vacancy for female candidates increases, female candidates' success will increase in the PSC examination. The gender quota and percentage of female enrollment in university education correlation is 0.95 meaning that after the implementation of gender quota, female enthused to enroll in university education. The annual GDP growth rate and gender quota correlation is 0.52 meaning that after the implementation of gender quota, annual GDP growth rate has also increased. The percentage of female candidates' success in the PSC examination highly depends on the proportion of vacancy for female candidates and female applicants.

The Table 5-7 reveals that summary of overall statistics using in this research.

Table 5-7: Summary of Statistics

Variables	Observation	Mean	Std. Dev.	Min.	Max.
Male Applicants	468	1882.02	5965.64	0	53812
Female Applicants	468	1051.18	4561.30	0	44549
Total Applicants	468	2933.20	10400.86	0	98361
Male Success	468	31.76	74.65	0	775
Female Success	468	12.10	48.02	0	611
Total Success	468	43.86	106.56	0	1026
Vacancy for Female	468	3.74	16.08	0	187

Total Vacancy	468	44.92	111.74	0	1190
Female Enrollment in University Education (%)	468	34.48	7.01	25.61	42.97
Annual GDP growth Rate (%)	468	3.79	1.34	0.20	5.80

Table 5-7 shows all observations are 468, most of the variables minimum numbers are zero. If total applicant and total success numbers are zero, which means that some services and levels few year data are not available. STATA automatically ignore this part of data in regression models. Maximum total applicants are relatively high, because after 2010 in the non-gazetted second class and the first class non-technical post implemented unified vacancy system that covers all non-technical services posts like administration, judicial, foreign and audit service, it cannot separate open competition applicants of those services. Most of the posts cover administration service. The unified applications for open vacancy candidates are accumulated in administration service. Thus, the maximum total number is relatively high for female applicants, male applicants and total applicants. Internal competition vacancy applications are collected separately, on the basis of services, groups, sub-groups and levels. So, internal competition vacancy application has not such problems. Candidates' success data also has not such problems, because the PSC recommends candidates on levels, services, groups and sub-groups clearly. This high variation of data affects other measurement of statistics such as: mean and standard deviation.

The Table 5-8 reveals that the trend of proportion of female applicants and proportion of female candidates' success in the PSC examination in year 2001 to 2011.

Table 5-8: Overall Proportion of Female Candidates' Success and
Proportion of Female Applicants Trend of PSC Examination
from the Year 2001 to Year 2011

Vacancy Year	Proportion of Female Success	Proportion of Female Applicants
2001	0.50	0.21
2002	0.10	0.16
2003	0.09	0.13
2004	0.21	0.21
2005	0.17	0.23
2007	0.26	0.39
2008	0.19	
2009	0.32	0.44
2010	0.26	0.44
2011		0.43

Sources: Data collected, combined and computed (from the year 2002 to 2012)
annual reports of Public Service Commission (PSC), Nepal

Table 5-8 shows overall trend of female applicants are gradually increasing. Even though vacancy year 2001 to 2003 is decreasing and the period between 2009 and 2011 is almost stable. Female applicants sharply increase from year 2005 to 2007. The female candidates' success increases gradually from 2003 to 2009. In 2001, 50 percent of women candidates' succeed in the PSC examination, but applicants did not increase. In vacancy year 2001, the huge number (around 4,000) of lower level (health service third level) health

service personnel were recruited. The position name is "Mother and Child Health Workers". These positions were only allowed for female candidates to apply. Thus, this was not a regular condition to female candidates' success. This health service, lower level newly created and recruited huge number of personnel showed that overall percentage of female candidates' success in the PSC examination is fifty percent in this year vacancies. In 2009, the large number of women (around 400) permanently recruited in the gazetted third class, non-gazetted first class and the non-gazetted-second class positions of miscellaneous service, who had already joined the service on the temporarily basis, where allowed to apply temporarily working female in same levels and positions. These personnel are related to women development activities. Therefore, this year also shows high female candidates' success in the PSC examination.

Following Figure 5-5 shows proportion of female candidates' success and proportion of female applicant trends of PSC examination from the year 2001 to 2011.

Figure 5-5: Overall Proportion of Female Candidates' Success and Proportion of Female Applicants Trend of PSC Examination from the Year 2001 to 2011

Chapter 6   Discussion

The results of different regression models and sub-models presented in the previous chapter are discussed in this chapter. Overall, percentage of female applicants and percentage of female candidates' success in PSC examinations have increased significantly since the implementation of the gender quota policy in 2007. Therefore, the gender quota policy is found to be effective in increasing female participation in civil service of Nepal. However, an increase in the percentage of female applicants and the percentage of female candidates' success are still smaller than the intended outcome expected from the gender quota policy.

After the implementation of gender quota policy, the overall percentage of female applicants has increased by 14.3 percentage points and percentage of female candidates who succeeded in the PSC examination has increased by 12.7 percentage points. It is noteworthy that the increased percentage of female candidates' success in PSC examinations highly depends on the vacancy for female candidates, further increase of which may not be feasible due to the high percentage of already provisioned quota for appropriate inclusiveness in civil service.

After the implementation of the quota policy, the overall increased percentage of female candidates' success is lower than the increased percentage of female applicants in PSC examinations. Therefore, the effect of gender quota is larger in the increased female applicants than in female candidates' success. This

shows that many qualified female candidates have not participated in the PSC examination in order to compete with male candidates.

The increasing rate of female applicants and female candidates' success are lower than the increased rate of vacancy for female candidates. It means female applicants and female candidates' success have not proportionally increased with the vacancy for female candidates.

In some services and levels have increased only female candidates' success without increased female applicants; and in some services and levels have increased only female applicants do not increase the female candidates' success. It is the real effect of gender quota policy in the civil service because the increased percentage of female applicants does not affect in increase of female candidates' success, only number of vacancy for female candidates affects in the increase of female candidates' success.

The effect of gender quota and the proportion of vacancy for female candidates differ in terms of services and levels. The largest effect of gender quota in increasing the percentage of female candidates' success in miscellaneous service is not only the effect of gender quota policy. In 2007 new amended Civil Service Act provided the recruitment of the women development personnel permanently, who had already joined the service on the temporary basis. Thus, the positions of around 400 were fulfilled in 2009, which was a big number for the miscellaneous service.

Non-technical and semi-technical types of services have larger effect of gender quota and proportion of vacancy for female candidates in increasing

the percentage of female applicants and female candidates' success in PSC examinations than technical type of services. The large effect of gender quota on non-technical and semi-technical types of services may have several causes, one of which is described as follows:

There is a strong relationship between the percentage of female enrollment in university education major and the effect of gender quota in different required educational background related services. For example, from the year 2001 to 2010, the average percentage of female enrollment in university education is 32.83 percent, in the same period, the average percentage of female enrollment in agricultural major is 17.09 percent.[21] The effect of gender quota and proportion of vacancy for female candidates are relatively lower in agricultural service. Similar conditions prevail in other education majors such as forestry (20.38 percent) and engineering (13.77 percent). The similar conditions are seen in the case of forestry and engineering services as well. Administration and foreign service related majors have larger average percentage of female enrollment in university education and the effect of gender quota and the proportion of vacancy for female candidates are relatively larger in these services. Even though education major has larger female enrollment, the effect of gender quota has not seen larger in education service because of the fact that university professors and teachers are not included in the Nepalese civil service. Health service has not seen the effect of

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[21] Female enrollment in University Education data are collected and combined from "Nepal Education in Figures, At-a-Glance" which is yearly published by Ministry of Education, Some current data are available on http://www.scribd.com/doc/76493532/Nepal-Education-in-Figure-2011-1

gender quota because this service has not applied gender quota system. Hence, the percentage of female enrollment in university education plays a major role for increasing female participation in the civil service of Nepal.

Two variables, the proportion of female applicants and the proportion of female candidates' success are highly correlated. If female applicants increase, female candidates' success will increase in the PSC examinations. Therefore, for increasing the female applicants, first we should increase the number of educated females. Thus, improvement of educational background of female is crucial for increasing female participation in the civil service.

Regarding the effect of gender quota on different levels of civil service, the bottom level positions have larger effect of gender quota in increasing the female applicants and bottom levels university education have higher percentage of female enrollment than top levels of university education. Thus, the effect of gender quota in different levels of civil service is also influenced by percentage of female enrollment in university education.

The increase in the percentage of female enrollment in university education is not only the one cause of gender quota policy. The MDGs have also focused on gender equality in education. However, the target of the MDGs is not gender equality in technical education and higher level education. The target of the MDGs is only gender equality in general; and primary and secondary level education. At the same time Education For All (EFA) program (2004-2009) was implemented in Nepal. The main focus of the EFA program was to increase gender equality and eliminate gender disparities in education (Vaux,

et al., 2006). Therefore, we cannot claim that only gender quota affects the increase in female enrollment in university education. However, we can claim that if the number of female increases in every major and level of university education, the percentage of female applicants and the percentage of female candidates' success will increase in every service and level of the PSC examination and female participation will also increase in the civil service.

The female participation in Nepalese civil service and the effect of gender quota policy are different than that in some other gender quota adopted developed countries. For example, in Korean civil service, female participation has seen higher in the redistributive agencies than in regulatory and distributive agencies (Kim, 2003). It depends on the choice of the female employees. Canadian and Korean civil service have more female participation in the bottom level positions than in top level positions (Kim, 2003; and Mansour, 2011). In the Nepalese civil service, the female participation in non-technical and semi-technical types of services has seen larger than in the technical types of services except health service. The non-technical and semi-technical types of services have also larger effect of gender quota than technical types of services. It depends on educational background of female. Regarding the level, the most bottom level has not largest and the most top level has not smallest percentage of female participation. The middle levels have larger female participation than bottom and top levels and the effect of gender quota is also larger in the middle level positions than top and bottom level positions. Therefore, in Nepalese civil service, the female participation

and the effect of gender quota do not portray only in the bottom level positions.

Chapter 7   Conclusion and Policy Implications

7.1   Conclusion

Many of the gender quota adopted countries have higher female participation than gender quota non-adopted countries in political representations. The gender quota is found to be effective for increasing female participation in political representation and corporate board. Therefore, the gender quota policy has become effective tool for increasing gender equality in all sectors. However, the civil service in developing countries has been found with small effect for increasing female participation.

This study investigates the effect of gender quota on the increase in female applicants and female candidates' success in the PSC examination of Nepal using OLS regression models for analyzing time series data from the year 2001 to 2011.

This study finds that female applicants and female candidates' success in the PSC examination have increased significantly since the implementation of gender quota policy in 2007. However, the increased percentage of female applicants and percentage of female candidates' success in the PSC examination are still smaller than the intended outcome expected from the gender quota policy. The positive effect of the policy, thus, is not adequate to achieve the equal participation of female on the basis of the ratio of female population of Nepal and the spirit of thirty three percent women participation in public sector as reinstated parliament declaration of Nepal which was declared in 2006 (Acharya et al., 2007).

After the implementation of the gender quota policy, the overall percentage of female candidates' success and the percentage of female applicants have increased. However, the increasing rate of female applicants and female candidates' success is smaller than the increasing rate of vacancies for female candidates.

The non-technical and semi-technical types of services have larger effect of gender quota and vacancy for female candidates than technical types of services in increasing the female applicants and female candidates' success in PSC examinations. Regarding the level, the middle levels have larger effect of gender quota than top and bottom levels in increasing the female candidates' success; and the bottom levels have larger effect of gender quota than top and middle levels in increasing the female applicants in the PSC examination.

The percentage of female enrollment in university education has increased, after the implementation of gender quota policy. The annual GDP growth rate does not affect the increase in the number of female applicants and female candidates' success in the PSC examination.

Finally, we conclude that gender quota is effective for increasing female participation in civil service of Nepal but the effect is somewhat limited.

Limitations of the Research

This research is limited to the quantitative analysis of the effect of gender quota policy as an instrument to promote female participation in Nepalese civil service. The measurement of the effectiveness of gender quota policy is

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determined by the percentage of female applicants and female candidates' success in the PSC examination. This research is based on secondary sources of data of the years from 2001 to 2011. This research covers the civil service personnel of Nepal, who are recommended by PSC for appointing in government organization of Nepal.

7.2   Policy Implications

Gender quota has become a popular tool of inclusion policy for increasing the female participation in the civil service of Nepal. Gender quota itself is not adequate for making equal participation of women on the basis of population and the spirit of the declaration made by the reinstated parliament of Nepal. Government of Nepal should address the fundamental causes of low female participation in the civil service. The fundamental cause of the low female participation in civil service lies not in the discrimination in the recruitment process against the female, but in the low female participation in the PSC examination, rooted from the lack of required educational background of the female to compete with male candidates.

The results of this study suggest that we must first achieve gender equality in every major and level of university education and reduce family care responsibility of female in order to increase female participation in civil service. For achieving the gender equality in every major and level of university education, Government of Nepal (GoN) should make environment equal participation of female on every major and level of university education. Therefore, GoN should motivate female to enroll in technical education,

waive or reduce applicable fees and provide other facilities. Now, many of the technical education facilities are established in capital city and developed urban areas, it should be decentralized in different geographical locations and rural areas.

When a female gets a job, there are no any provision for avoiding previous family care responsibilities of a female such as childcare, eldercare and household works. Therefore, the family care responsibility of females should be reduced, when they go for a job. The government should formulate and implement childcare and eldercare policy, which will facilitate women to achieve higher educational qualifications and boost their career development. The government should arrange community based eldercare centers and childcare centers for caring elder people and children. They must be established in different geographical locations and rural areas.

We need some further research in the related field. First, a study is imperative so as to examine whether the increased percentage of female participation in civil service of Nepal is equal or not on the basis of geographical regions and different groups of people such as indigenous, Madhesi, Dalit, disabled and backward area people, which have already been identified; secondly, whether gender quota based representative bureaucracy or the increased female participation is effective or not for providing the government services to the people and accountability of government functions.

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여성할당제가 여성의 공직참여에 미치는 영향에 관한 연구:

네팔의 양성평등정책에 관한 연구

Hari Prasad Upadhaya

행정대학원 행정학 전공

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본 연구의 주요 목적은 여성의 참여를 위한 포용 정책의 효과를 알아보는 것이다. 이 정책은 1990 년대에 차별철폐 조치 및 긍정적 차별 개념을 통해 최초로 도입되었다. 2007 년 이후로 네팔 공무원 제도에 여성할당제가 시행되었다. 중앙인사기구의 시험(PSC 시험)은 네팔에서 공무원이 되는 주요 방법 중 하나이다. 본 연구는 여성 응시자들의 PSC 시험 응시 및 합격 여부를 주로 다룬다. 본 연구에서는 PSC 시험에서 여성 응시자의 합격률이 증가한다면, 네팔 공무원직의 여성참여율이 높아질 것이라고 가정한다. 또한 여성할당제가 여성의 고등교육 이수에 미치는 영향을 탐구한다.

본 연구에서는 여성할당제 시행 이후로 여성의 PSC 시험 응시 및 합격률이 유의미하게 상승했음을 발견했다. 그러나, 여성 응시자들의 PSC 시험 합격률 상승폭은 예상보다 작았다. 따라서, 이 정책의 긍정적인 측면은 네팔의 여성인구와 최근 부활된 네팔의 국회 선언문 정신에 기반해 여성의 동등한 참여를 달성하기에는 충분하지 않다. 여성할당제가 시행됨에 따라, PSC 시험에서 여성 응시자들의 총 합격률은 12.7 퍼센트 증가했고 여성 응시자 수는 14.3 퍼센트 증가했다. 종합하면, 여성 응시자들의 PSC 시험 합격률의 상승폭이 여성 응시자들의 상승폭보다 낮다.

직무영역별로 살펴보면, 기술적 영역보다는 비기술적 및 준기술적 서비스 영역에서 여성할당제 및 여성전용보직을 두는 것이 PSC

시험의 여성 응시자 및 응시자 합격률을 더 크게 높였다. 직위에 관해서는, 중간 직위에서 상위 및 하위 직위보다 여성 응시자 합격률이 더 크게 증가했고 하위 직위에서 상위 및 하위 직위보다 PSC 시험의 응시자 비율이 더 크게 증가했다. 성별할당제는 여성의 참가율을 높일 뿐만 아니라, 여성들이 고등 교육을 받도록 장려한다.

이 결과는 여성의 공무원직 참여율을 높이려면, 고등교육의 모든 전공 및 모든 고등 교육 수준에서 성평등을 달성하고, 나아가 여성의 가족 부양 의무를 줄일 필요가 있음을 제안한다. 네팔 정부는 여성들이 기술 교육을 받도록 동기를 부여하고, 기술 교육 및 고등 교육에서 성평등을 달성하기 위해 기술교육 인프라를 분권화할 필요가 있다. 또한 여성의 가족 부양의무를 줄이기 위해 보육 및 노인복지 정책을 만들어 시행해야 한다.

키워드: 성별할당제, 포용정책, 여성 관료, 공무원제도, 시계열데이터, 네팔

학번: 2011-24183

Acknowledgements

Master of Pubic Administration (MPA) study in Korea is a great opportunity for me; I would like to express thanks to the Government of the Republic of Korea and the Korea International Cooperation Agency (KOICA) for providing me this opportunity. I would also like to express gratitude to the Government of Nepal, Office of the Prime Minister and Council of Ministers for nominating me in this course. I would also like to express thanks to the Graduate School of Public Administration (GSPA), Seoul National University for admitting me to this program.

I am very much indebted to Professor Kwon, Illoong for his valuable guidance, continuous support, and supervision in every stage of my thesis work. I would not have completed this study without his intellectual direction, constant guide and motivation. I would also like to express thanks to the dissertation committee members Professor Kim, Soon Eum and Professor Lee, Soo Young for providing me valuable feedbacks and suggestions in my research work.

I would also like to express gratitude to the Dean of GSPA, Global Master of Public Administration (GMPA) Program director Professor Kwon, Huck-ju, all professors of GSPA, GMPA Program Manager Ms. Lee, Yongmi and administrative staffs of GSPA for their unlimited support in maintaining sound academic environment for the study period.

My thanks are due to Dr. Lee, Geon, who helped me with his ideas about writing and statistical analysis in my research work as a mentor. I would like